

ECONOMY AND NAVAL SECURITY

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By the same Author

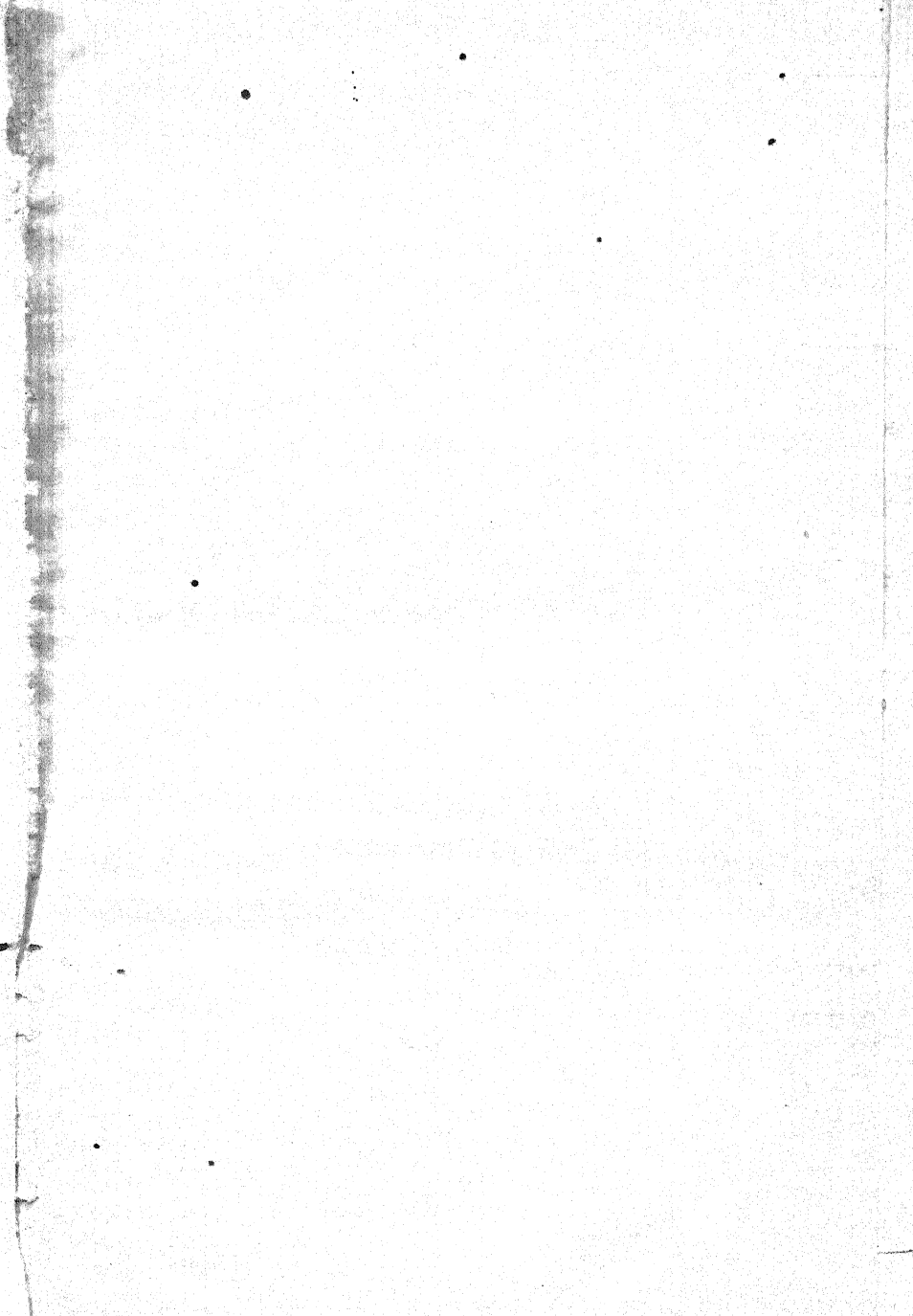
THE NAVY IN THE WAR OF 1739-48 (3 vols.)

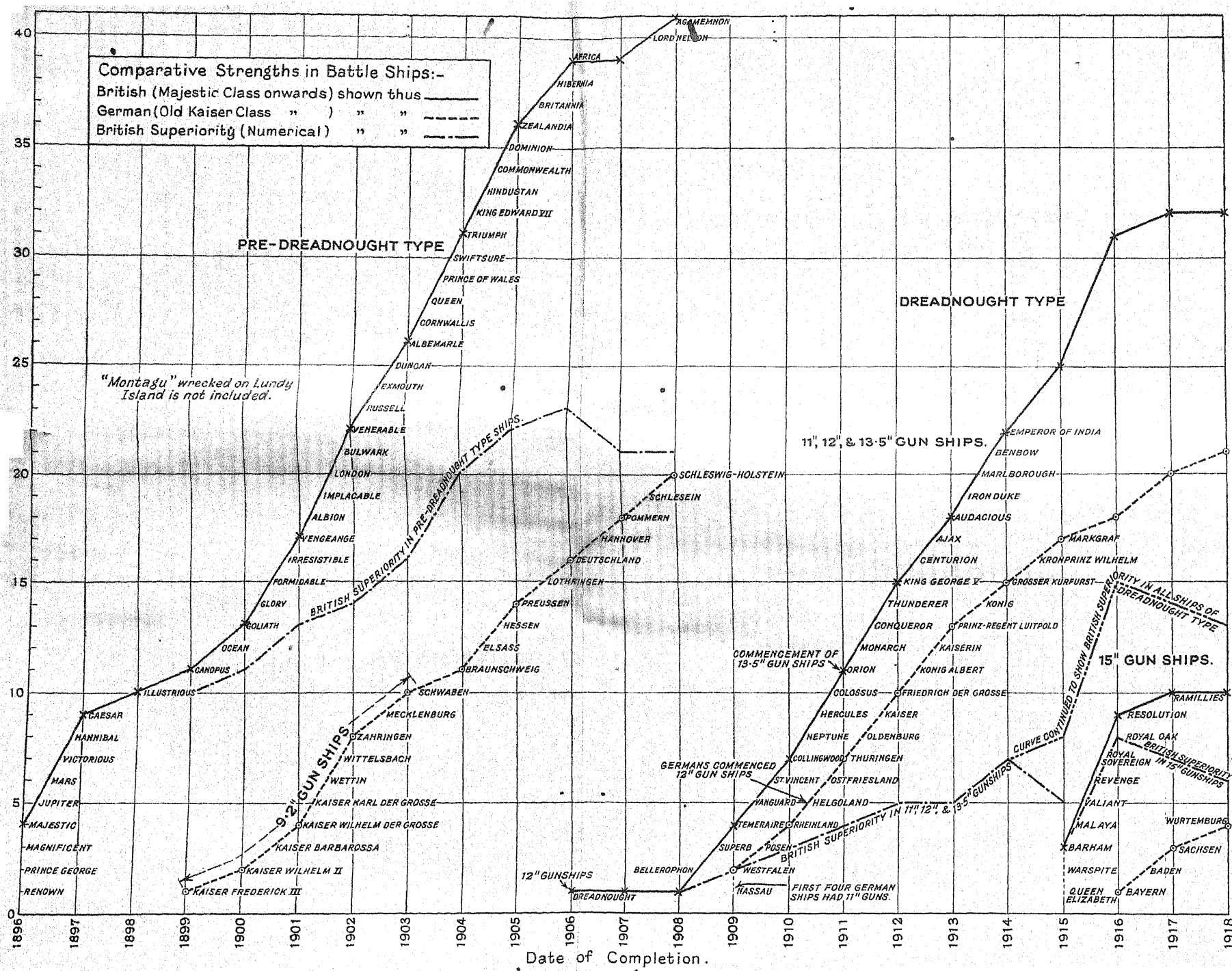
NATIONAL POLICY AND NAVAL STRENGTH

NAVAL WARFARE

COMMAND AND DISCIPLINE

THE NAVY IN INDIA 1763-83





The graph illustrates the effect which the policy of "the doctrine of size" produced upon the strength of England at sea up to the time of the outbreak of war.

The shipbuilding programmes are carried back to the *Majestics* only, and British superiority up to 1905 is therefore not fully represented, as the whole of the *Royal Sovereign* class, ships certainly not inferior to the first *Kaiser* class, are omitted. It will be observed that the German "capital" ships previous to 1904 were armed with 9.2" guns. Ships of the Pre-Dreadnought type are shown on the left, of the Dreadnought type, armed with 11", 12", and 13.5", in the centre, and of the Super-Dreadnought, with 15", on the right.

The diagram shows that British superiority in Pre-Dreadnoughts was actually greater than the German total, and continued to increase until 1906, when the Dreadnought was evolved and the two *Lord Nelsons* were delayed in order to provide the necessary guns and mountings. The German curve suggests that the change was not anticipated, as it continues straight for two years more. Taking 1906 as the end of the Pre-Dreadnought period, and counting all ships as effective, the strengths at that time were :

British	.	.	.	.	39 of the line
German	.	.	.	.	16
					—
Superiority	.	.	.	.	23
					—

The Dreadnought curves do not include ships specially procured during the war: as it is the previous programme only that is of importance in illustrating the mentality which had governed construction. Thus, the curves from 1916 onwards are not very real.

The cost of the ship has gone up more than sevenfold from the £840,000 of the original *Royal Sovereign* of the Naval Defence Act to the £6,414,653 of the *Rodney*; and neither this country, nor any other, is any more secure than it was when the ships were smaller.

Such is the effect on the school of thought which to-day insists that "battleships" and "cruisers" must be of those vast dimensions which they have reached, and which refuses scientifically to examine the question, "What dictates the size of the fighting ship?"



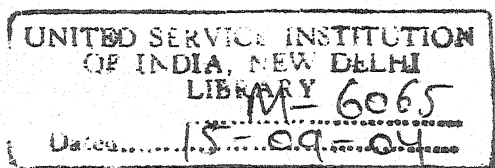
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ECONOMY AND NAVAL SECURITY

A plea for the examination of the problem of the reduction in the cost of naval armaments on the lines of strategy and policy

by

ADMIRAL SIR HERBERT RICHMOND



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"It generally argues some degree of natural impotence of mind, or some want of knowledge of the world, to hazard plans of Government except from a seat of authority. Propositions are made, not only ineffectually, but somewhat disreputably, when the minds of men are not properly disposed for their reception: and for my part I am not anxious of ridicule, not absolutely a candidate for disgrace. But I felt this as one of the few moments in which decorum yields to higher duty. Public calamity is a mighty leader: and there are occasions when any, even the slightest chance of doing good must be laid hold on, even by the most inconsiderate person. My plan, therefore, being formed upon the most simple grounds imaginable may disappoint some people. . . . It does not institute a magnificent auction of finance . . . trading against each other until you knock down the hammer and determine a proportion of payments beyond all the powers of algebra to equalise and settle."

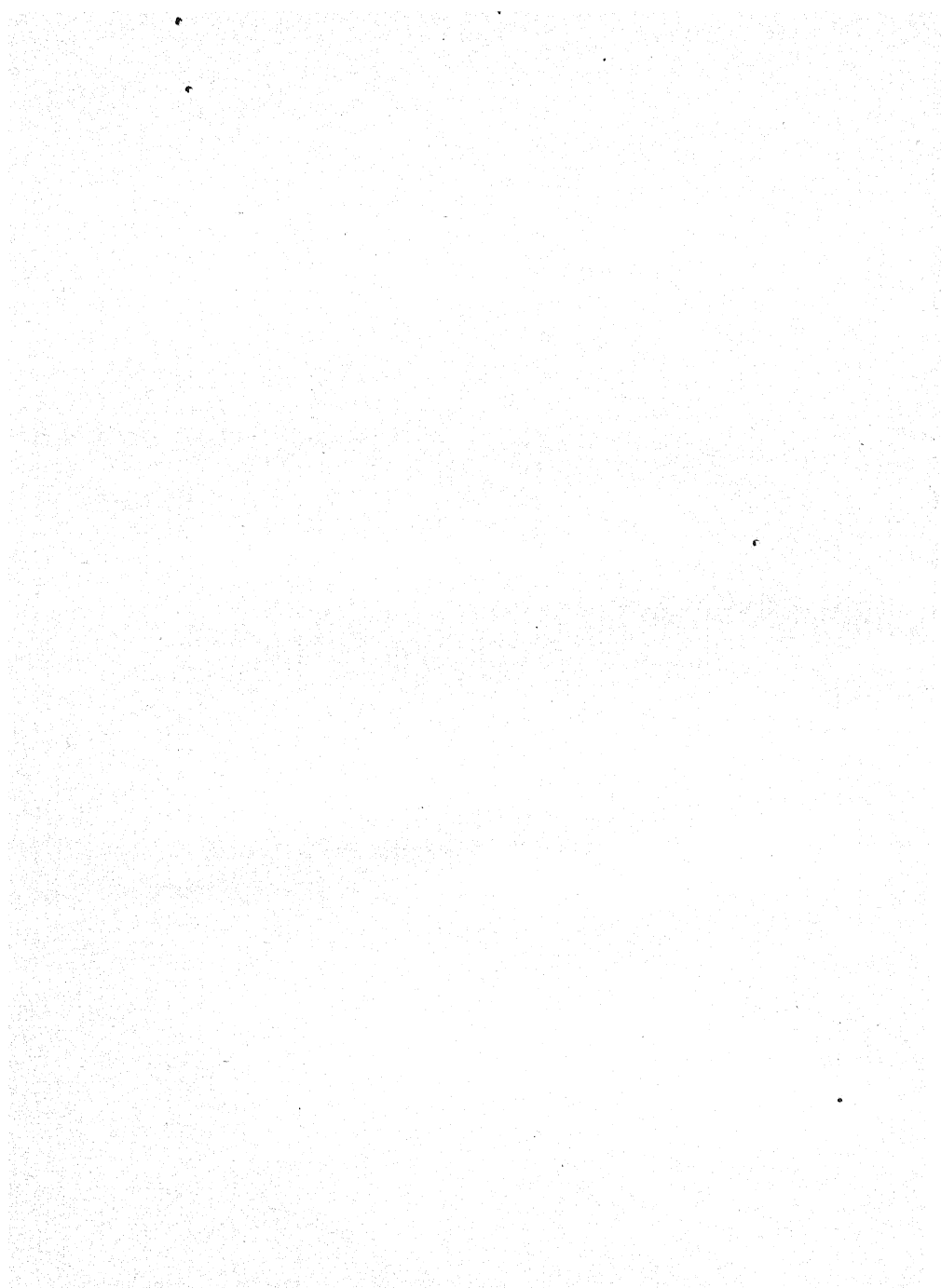
(EDMUND BURKE. *Speech on conciliation with America*, March 22, 1775.)

"I cannot subscribe to the doctrine that a naval officer on half-pay is interdicted from publicly pointing out what is wrong in the management of the affairs of the State, any more than a civilian or a military man."

(ADMIRAL SIR CHARLES NAPIER, *The Navy in its Past and Present State* (1851), p. 204.)

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PREFACE

IF there be one outstanding need in the Great Britain of to-day, it is the need for economy. Pressing as this is in our own case, it is hardly less important for the other nations of the world, even those who appear to be the most prosperous.

Naval armaments are one, and one only, of the causes of national expenditure, and, although it may be practicable by means of international understanding to obtain security at a lower cost, we shall be blinding ourselves to facts if we suppose that, so long as security is the ultimate aim, and armaments the *ultima ratio* by which security is attained, great reliefs to the taxpayer are to be obtained solely by reduction in the navies.

The total estimated expenditure of the United Kingdom for 1930 is £787 millions. Out of this, when allowance is made for non-effective charges (pensions, gratuities, etc.), £92½ millions are spent upon the fighting services. If it were within the bounds of possibility to obtain the security, which it is the right of a free people to possess by a reduction of the cost of the navy by almost one-third, the relief in the burden of expenditure – £20 millions – is no more than 2½ per cent. of the national expenditure.

This is not intended to convey the impression that a “mere” £20 millions, or 2½ per cent., is supposed to be in any sense a negligible figure in

national finance. It is to remind those who desire that effective reductions shall be made in the burden they bear that, although a measure of relief is to be found in the cost of the navies and fighting services, their attention must not be confined to these alone if the prosperity of the country is to be restored. Economy must be general.

It appears to the present writer that naval officers owe it as a duty to their several countries to examine, in a true scientific spirit, the problem of how the security for which they are responsible can be obtained at a lower cost; cutting themselves away from everything which partakes of these uses of mere authority which express themselves in shibboleths, slogans, fetishes, catchwords, or *a priori* methods of reasoning with an unproved major premiss. "You must begin by deliberately and scientifically trying to ascertain the facts."¹ In order to do this it appears to me to be necessary, even if it seem wearisome, to go back to the fundamental elements of the problem of defence. This involves defining the ultimate object with which we maintain armaments at all; the forms of injury which these armaments are intended to prevent; the manner in which force is most effectively employed; and the factors affecting quantities of force and the types of instrument required.

One of the fundamental difficulties attached to this question appears to me to be that there is no agreement on the *object* we are pursuing. According to one school of thought, armaments are a cause of war; from which it follows, since the ultimate aim

¹ Sir John Simon on the Indian problem.

is peace, that to reduce armaments is to reduce the danger of war; and our object is "to prevent war," its attainment being reached by reduction of armaments. According to another school, the aim still being peace, the object of armaments is to coerce a would-be turbulent Power and force it to accept jurisdiction of its claims – an international police function. A third school holds that the purpose of armaments is security, and our object is "to ensure security to all at the lowest possible expenditure."

Consideration of the first two of these views belongs properly to the statesman. As a naval officer I have no more claim than any other citizen to express opinions upon them. As a citizen I have as much claim as any other citizen. But I do not propose to make the first two of these the subjects of what follows. I would, however, express the opinion (in my capacity of citizen) that the cause of war is not armaments, but policy. It was not the armaments in the North and the South of the United States that caused the dreadful four years' conflict in the 'sixties, but the opposing policies of two sets of people. Nor was it the armaments of Europe that precipitated the war that began in 1790 and lasted for close upon twenty-five years. Armaments were then at a particularly low ebb among the nations of Europe, exhausted as so many of them were by an almost continuous series of wars for fifty years. Armaments appear to me to be expression of policy. Prussian policy in the 'sixties aimed at a consolidation of "Germans" under the headship of Prussia; to attain this,

armaments were necessary. Policy was the main-spring, armaments the hands. Policy is the disease, armaments its outward manifestation.

If policies come into direct collision, "war" in some form – and it can take many forms, from a General Strike to a submarine campaign, each of which aimed at the starvation of the adversary – will take place, whether there be armaments or not. Men will arm themselves as the citizens of England in her civil war, or of the United States in their opposition to England, and later to each other, armed themselves, and will fight with what arms they can procure.

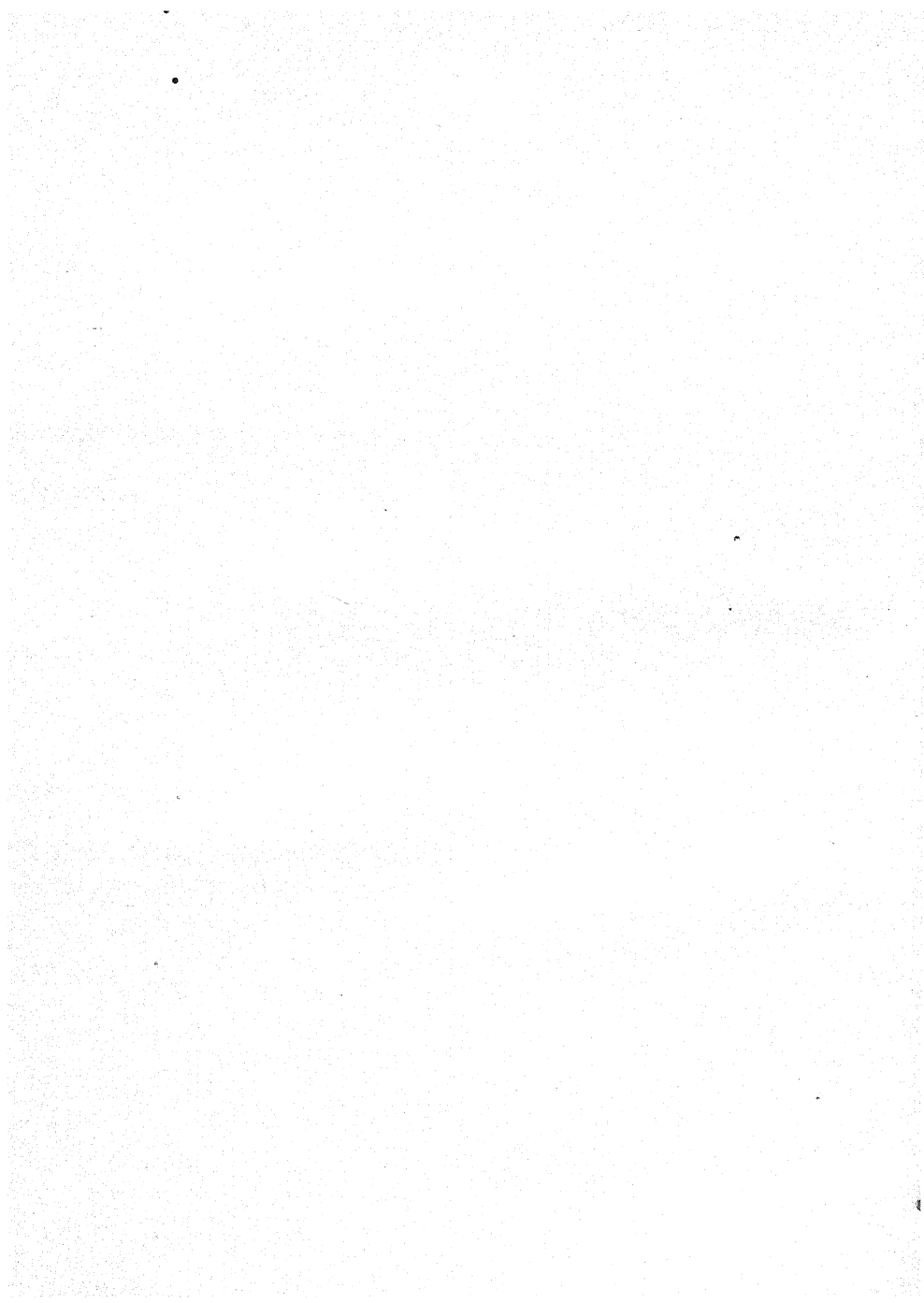
On the second thesis, that the object of armaments is to "coerce the law-breaker," it would seem that the world at large is not prepared to accept that view. For one thing, no nation appears to be ready to make the surrender of sovereignty which is implied. For another, few, if any, of the greater nations show any willingness to commit themselves *in perpetuo* to intervention as police in any and every quarrel. So the fate of the Treaty of Mutual Guarantee would seem to indicate. True, the Kellogg Pact had not at that time come into existence; but it is not easy to distinguish any great change in outlook since its signature on the part of the principal Powers concerned. The proposal for a "Mediterranean Pact" was hastily rejected in this country: and this is the more curious because, for one thing, it would have been one of the greatest possible steps towards a reduction of naval armaments, and towards the prevention of war; and, for another, the Locarno Pact

had been both accepted and applauded. Hence we witness the strange phenomena of a country expressing the utmost desire for peace but reluctant to accept obligations to attain it; obligations which, in their material sense, would have imposed a lesser burden upon its own back: and of the same country accepting obligations which infallibly call upon it to furnish military force, which it does not possess, while refusing to accept obligations which call for the use of a naval force which, by the very conditions of its existence, it is obliged to possess.

Clearly, these superficial comments do not cover the question: nor are they intended to do so. The two questions are political: and I address myself to the third thesis only, accepting – as it seems to me, a naval officer must do – that he is called upon only to express views dealing with naval armaments in their relation to security.

H. W. R.

January, 1931.



INTRODUCTION

THE problem of naval armaments has now been prominent in the public eye for the last few years; that is to say, since the Washington Conference, which was the first of three held with the object of coming to some equitable agreement for reduction of naval forces without loss of security.

Important as a study must be of what has been done, and what left undone, at these Conferences, such study alone will not furnish a complete appreciation of the nature of the problem. These questions have a genesis of their own. There are antecedents of extreme importance, antecedents which determined the cast of thought, provided precedents, and, more, established those premisses upon which the investigations of 1921, 1926, and 1930 were based. Causes and processes of thought, both naval and political, determined those antecedents, and determined them to a larger degree than the participants themselves appear to have been aware.

The naval problem did not suddenly burst into being in 1921. It was then it became immediate and acute. It flowered, but the seed had been sown long before. A steady rise in the growth of navies of the world, including an increase in the size of their units, had been in progress since the 'eighties of the last century. In the early 'eighties, Britain had undoubtedly fallen behind with her navy. Mahan's books suddenly awakened her from her

somnolence, as they awoke others to a new realisation of what sea power means. The Naval Defence Act was passed which placed her in a secure position, while a declaration of her naval policy, in the terms of a "Two Power Standard," informed the world of her intentions. This declaration, like all honest and unequivocal public statements,¹ clarified British policy and, assuring the world of British intentions, stabilised the situation. British needs were then clearly expressed in terms of her security, and no competition took place; for the other nations recognised that, notwithstanding certain minor political irritants rarely absent in international relations, British national policy constituted no threat to the interests of any foreign Power; that the whale cannot come to grips with the elephant; and that to the scattered thalassic British Empire, sea power was an indispensable element of safety. They therefore made neither cavil, protest, nor challenge, and competition only began when it was generated by that exuberant ambition, personal vanity, and almost childish distorted vision which find outward expression in the marginal notes of the German Emperor.*

This competition began to cast its shadows in the first few years of the present century. The problem of how it was to be met had then to be considered. At that moment,² Britain possessed

¹ Of which the familiar examples are the declarations made by British Ministers regarding British policy in Egypt, in Siam, and in the Persian Gulf; and the American "Monroe Doctrine."

² Cf. German Diplomatic Documents, vol. iv.

* *Vide* graph in frontispiece, and remarks attached. The graph does not include battle-cruisers.

39 "capital" ships to 16 of Germany, a superiority of 23 vessels; and her ships carried heavier artillery. Two courses were open. The one was to maintain the existing superiority by the addition of units; the other, to maintain it by an increase in the strength of the new units.

Dominated by those views which have since held the field and constituted the basis of naval programmes, and have resulted in more than doubling the size and quadrupling the cost of the "capital" ship,¹ the British Admiralty decided on the latter policy, the result of which is clearly seen in the frontispiece.

It is not, however, with the result that I am here concerned, but with the mentality which furnished its driving-power. It may indeed be that the policy would have proved advantageous if the anticipated war had taken place in 1909, when Britain had already provided herself with some of these new vessels and Germany had not. But it is idle to speculate on what-might-have-been; for it is equally clear that, if such an unchallengeable superiority were produced, the result could only be to defer the "inevitable" war until this new factor in the situation had been adjusted by the construction in Germany of similar ships. War did not come in 1909. Germany launched her successive Naval Laws, and by 1914 the superiority of 23 effective modern "battleships" had been reduced to one of 7.²

	<i>Tons.</i>	<i>Cost.</i>
¹ Last Ships of the Pre-Dreadnought Type	16,350	£1,450,000 (average)
<i>Rodney</i> (vide <i>Brassey</i> , 1931, p. 296)	33,500	£6,414,653

² Excluding the battle-cruisers.

Those material views of naval policy which dominated men's minds then, and have since cost all the countries of the world such vast sums of money through the increased size of the individual ship, still exist, still dominate. The disease of materialism is contagious, and nations, like individuals, vary in their susceptibility to contagion. The United States "caught" it badly, while France, protected by the phagocytes of logic and military doctrine, has had a milder attack.

We thus see a hectic competition in its fullest exuberance in 1914. The naval situation, at about the time of the outbreak of the war, in regard to "capital" ships of the modern and Dreadnought type, including battle-cruisers, stood thus

	<i>British Empire</i>	<i>France</i>	<i>Italy</i>	<i>Japan</i>	<i>United States</i>	<i>Germany</i>
Built	29 (a)	4	2	6	10	20
Building	10	8 (b)	4	3	4	4
	—	—	—	—	—	—
Totals	39	12	6	9	14	24
	—	—	—	—	—	—

(a) Not including three ships building for foreign Powers: *Agincourt* and *Erin* (Turkey), *Canada* (Chile).

(b) The work on these was stopped when War broke out. Only 3 of the 8 were completed afterwards.

When the peace came, the 24 German ships which had been completed,¹ whose existence was the primary reason for the increased size in the British Fleet, disappeared, some under the waters of Scapa Flow, others by virtue of the Treaty of Versailles. That menace to British superiority was

¹ Three others — *Sachsen*, *Württemberg*, and (Ersatz) *Kaiser Wilhelm der Grosse* — had been begun, but work upon them was stopped during the War.

then a thing of the past. The "capital" ship situation (battleships and battle-cruisers) when peace was signed (July 1919) stood thus:

	<i>British Empire</i>	<i>France</i>	<i>Italy</i>	<i>Japan</i>	<i>United States</i>	<i>Germany</i>
Built	39	6	5	11 (e)	17	—
Building	1 (c)	—	—	2 (f)	4 (g)	—
	—	—	—	—	—	—
Totals	40	6	5 (d)	13	21	—
	—	—	—	—	—	—

(c) *Hood*.

(d) *Leonardo da Vinci* had been sunk during the War.

(e) Includes *Satsuma* and *Aki*.

(f) *Nagato* and *Mutsu*. *Mutsu* laid down in June 1918.

(g) *California*, laid down October 1916; *Maryland*, April 1917; *Tennessee*, March 1917; *Colorado*, May 1919. Others were projected (*Washington*, *Indiana*, *Massachusetts*, *Montana*). It will be observed, however, that three only were measurably advanced, the *Colorado* but a few months.

Observe, then, the position in which Great Britain was at the time of the signing of peace. She possessed 39 very powerful ships.¹ All the other maritime Powers had been our recent allies. The United States had a programme in hand which would give her 25 ships. She had laid aside, when she came into the War, the great programme proposed by Mr. Wilson when he carried the fiery cross through the West in the winter of 1916, and had devoted her efforts — and great these were — to the building of the light craft essential to the common cause. Japan was still an ally, but even had she not been so there was no possible cause of political dissension between her and the British Empire, though there was an unfortunate friction between her and the United States. The *Mutsu* had only just been laid down, and her construction

¹ The *Hood* was not completed until 1920.

was still – possibly – not inevitable. France and Italy had built no modern ships since the outbreak of the war, and possessed between them no more than 11 battleships, the most modern of which were of under 23,000 tons and inferior to the majority of those of Britain.

If ever there was a moment at which British statesmanship had the opportunity to take the lead and to mould events to the benefit of the world – not merely her own benefit only – this was that moment. The British Empire would have been in no danger whatever if, instead of declaring a “One Power Standard” – the “one Power” being obviously the United States – Britain should then have announced her return to her old policy, which excluded the United States; should have implemented this declaration by an immediate actual destruction of the ships thus rendered redundant; and should have ceased at the same time the construction of her monster, the *Hood*, or any other battleship.

Not only would she have been in no danger. She would have removed a danger. I know not what really lay in the minds of those of America with whom lay the decision to construct a great fleet. Outward expressions are not always an accurate interpretation of motive. The outward expression was the need for guarding against the injury done to the oversea commerce of the United States by the Allied action against the Central Powers during the war. But, valuable as this was as a slogan for a programme, it is permissible to doubt whether sagacious American statesmen, who

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were perfectly acquainted with the figures for American trade,¹ made it their *causa causans*.

I do not wish to underestimate the driving-power of the popular cry that "never again would American commerce suffer restriction in similar circumstances," but I venture to believe that an even more potent influence, felt, perhaps, rather than outwardly experienced, was the fear of a Britain, overwhelmingly strong at sea, without a rival to curb her in Europe.

If there be one plain lesson of history in relation to armaments it is surely this: that if one nation becomes unquestionably dominant, one whose strength palpably exceeds that which is needed for its security, it becomes the object of distrust and fear.² Security, in fact, is not measured solely in unilateral terms. It is also a question of a feeling of security among others.

Although it was stated eighteen months later that "the United States' naval building programme since 1903 has consistently tended towards equality in sea power with the strongest,"³ this statement is hardly borne out by the facts of the building policy. It would (I hope it may be said without offence) be

¹ The figures in million dollars, for the exports and imports of the United States, excluding gold movements (which in 1915 and 1916 were imports of \$420 and \$520 million respectively), were as follows for the calendar years referred to:

Year.	Exports.	Imports.	Total Sea-Trade.
1913	2,484	1,792	4,276
1914	3,113	1,789	3,902
1915	3,554	1,778	5,332
1916	5,482	2,391	7,873

In 1917 the United States entered the war.

² Cf. pp. 47 and 83 for further remarks on this matter.

³ Senate Report No. 766, 66th Congress Congressional Record, February 9, 1921.

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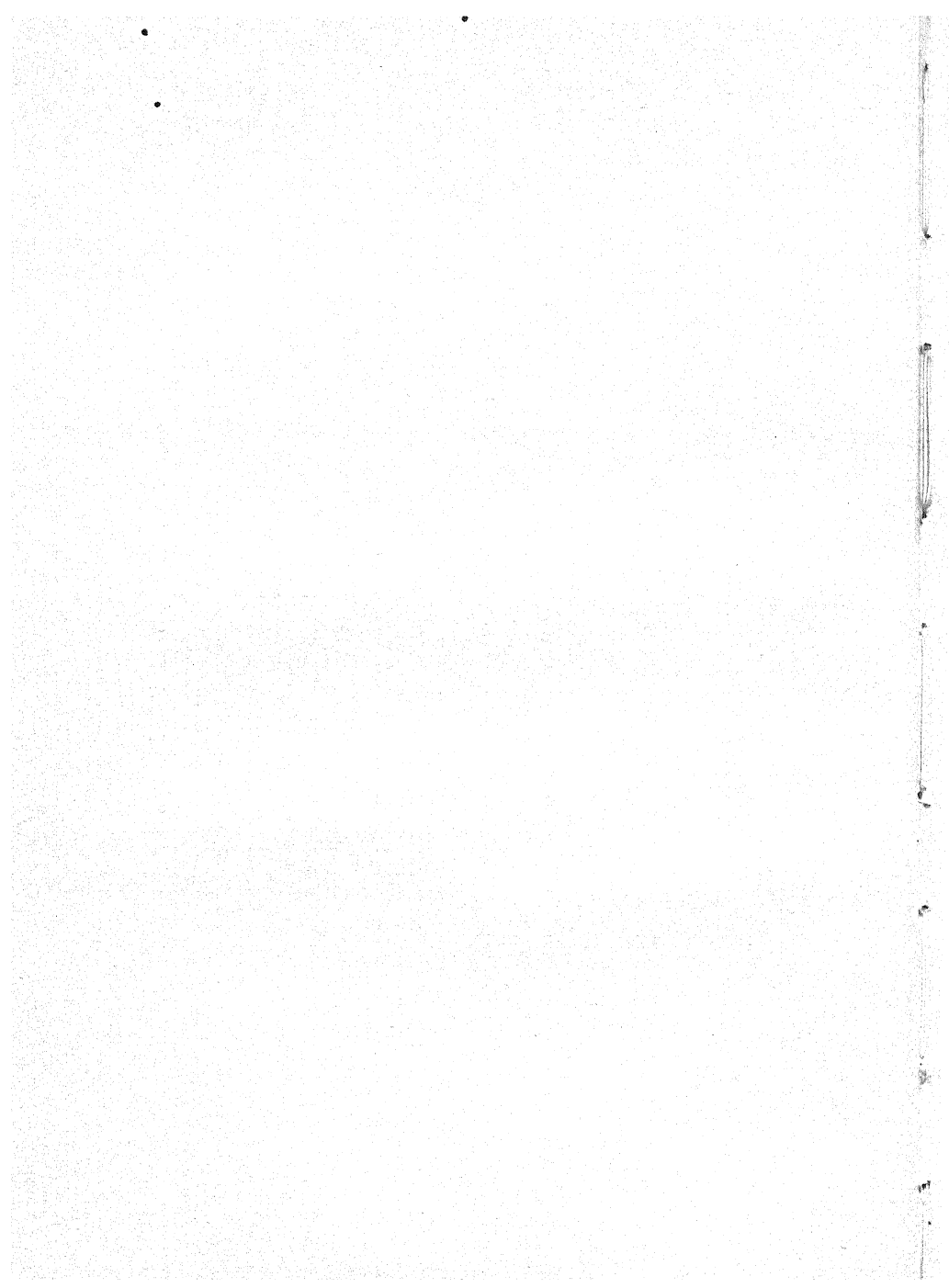
more accurate to date that "policy of equality" from Mr. Wilson's winter campaign of 1916, in which it was implicit that a *new* policy was then being launched. We are, indeed, too well aware in our own country of the declarations by which support for a policy is publicly discovered, to attach an undue weight to the assertion of the "tendency since 1903." To me, therefore, it appears that we have, at least, admissible grounds for the belief that such a declaration as I have outlined, accompanied by such acts, would have produced a very considerable "reaction" across the Atlantic. For it would have left no grounds of fear of a British naval hegemony, and the United States would have attained the "equality" they desired without further construction. Even though they would have had some superiority in the possession of one, or even more ships of greater size and power than those of the British Empire, the possibility that these would constitute a danger was too remote to be allowed to influence policy; for, even assuming the political possibility of a war between the two Powers, all of these ships would have been obsolete long before economic conditions could enable the Empire to contemplate war. A debt of £8,000 millions is a consideration.

Although the sentiments of the United States were unconcealed, and although the need in Britain for economy, even to the extreme of parsimony, was paramount, this saving policy was not adopted. Whereas we might have sat down to think, we proceeded, dominated by conceptions of material, to build. Forgetting, or failing to

recognise, that the true and permanent lessons of Jutland were lessons of command and of the art of fighting, attention was confined to, and concentrated solely upon, other lessons of a purely material and evanescent nature; and the wholly unproved assumption was made that the existing "pre-Jutland" ships were all useless in the face of those of later construction – an opinion by no means universally shared.

For eighteen months the course of events was ruled by this view and by the supposititious danger in which this country would be if it did not provide itself, as soon as possible, with these new instruments, which, in order that they should embody the so-called "lessons" of Jutland, approached 50,000 tons in size. Then the results began – dimly to some, clearly to others – to be realised. Towards the end of 1920 the wisdom of the course came into question, and it is permissible to conjecture that doubts not only as to the possibility of finding the money, but also of the results of the competition which now was beginning, were the principal causes which brought about the Conference at Washington. These doubts resolved themselves into an endeavour to discover whether an accommodation was not practicable.

Although the first, and the greatest, opportunity had been missed in 1919, another was now afforded.



THE PRINCIPLES ADOPTED AT THE CONFERENCES

THE problem of reduction of naval armaments, in its technical aspect, is a twofold one. It is divided into two parts, distinct and separate, but nevertheless interdependent: the strength of navies, and the sizes of those individual ships which constitute navies. The Washington Conference of 1921 introduced a method of limitation of the strength of navies by the adoption of relative numbers, or "ratios," measured partly in tonnage and partly in units, of two classes of ships—the so-called "capital" or "battle" ships, and the "aircraft carrier." The size of the individual ships was to be regulated by the adoption of certain arbitrary maximum figures for the "battleship," the "cruiser," and the "aircraft carrier."

In saying that these figures were arbitrary, I mean that they were based upon no scientific foundation derived from the needs and functions of navies, or of ships, in war. The figure for the "battleship" was, as is well known, 35,000 tons; for the "cruiser," 10,000. The reasons for these figures were partly political and partly technical, using the latter word in its narrow sense of "material technique." They were wholly unrelated to the technique of strategy or tactics. The 16" gun had been recently produced, and it was argued that an armament of guns of that size, in sufficient numbers to enable them to be used effectively, at

the ranges at which they were capable of shooting, necessitated, together with certain other demands, a tonnage which could not be less than 35,000.

The fact that it proved practicable for the maritime Powers to come to an agreement setting a definite limit upon the size of the ships they would build was as important as it was unexpected. What is strange is that the whole significance should have escaped attention, and that no real effort should have been made by men of a statesmanlike mind further and scientifically to explore the problem of size. To myself, it appeared of such importance, such far-reaching possibilities, that I wrote the following letter, over the signature "Admiral," drawing attention to the matter¹:

"It is most sincerely to be hoped that the present opportunity of reducing the tonnage of fighting ships will not be missed. It will never occur again. An acceptance of the possibilities of placing a definite tonnage limit upon the largest type of ship, hitherto deemed impossible to impose, has been reached. The Powers have agreed that no ship of the future shall exceed 35,000 tons. This is of the highest value.

"But why 35,000 tons? What is there in this number of importance? Why not 34,000, or 30,000, or 20,000, or 10,000? There is in reality no reason for that figure. A fleet of battleships of 35,000 tons, opposed to another of the same tonnage, can produce no greater results than one of ships of 10,000 tons. All you have is a bigger battleship.

¹ *The Times*, November 21, 1921.

Not only are there no greater results, but the possibility is that the results of an action between these immense, costly, irreplaceable ships will be smaller than those of lesser ships. Officers will be less inclined to risk them; and we shall get the same position as that of the Army of the Potomac of which Sheridan said that 'the commanders never went out to lick anybody, but always thought first of keeping from being licked.' Was there not, indeed, something of this kind in the minds of the commanders at Jutland?

"There is neither strategical nor tactical necessity for ships of this prodigious size. They are no more capable of performing the functions for which battleships are intended than would be vessels of, say, 10,000 tons. They cannot keep the sea any longer. They may be faster; but, as the enemy's ship is likewise faster, there is nothing gained—they have no advantage over an equal enemy. The only reason that they have been built has been that other people have built them, or that one desires to get an advantage over someone else by building a bigger or more powerful instrument. So we have progressed from the battleship of the 'nineties to 42,000-ton *Hood*, and still we have only got a battleship and nothing more. The only difference is that we pay £10 millions for each unit instead of one. The growth in the size of the ship has not increased the strength at sea of any Power. Science, so far from giving us more for our money, as it does in most activities of this world, gives us less. A ship that can do no more costs at least ten times as much.

"But can this new type of ship do not only no more, but as much, as her predecessor? She has not greater powers of remaining at sea. She is not able to use the harbours her predecessor could. She requires more supplies. She needs, just as much as they, an escort to protect her if she goes to sea. She cannot operate in some parts of the world because there are neither bases capable of taking her, nor docks. It is the same for all Powers concerned. We have got bigger ships, but not one of us is one whit stronger than if we had never increased the size at all: since all have got them.

"Now we have a chance of putting a stop to this foolish waste. Instead of putting the limit at 35,000 put it at, say, 10,000.¹ That is sufficient to provide a ship that can go anywhere; and if no one is allowed to build a bigger ship, the need that forced competitors forward disappears. It has not been possible to do this before because of the impossibility of getting an agreement to limit size. To-day all the Powers are eager to reduce expenditure, and here we have the easiest means in the world. What science will then do will be to make these 10,000 tons of metal go as far as possible in producing an instrument capable of performing the duties that have called it into existence.

"For this a ten years' holiday is essential. The old mastodons must not be replaced annually. Let them die out. The fear that armour-plate firms and others will suffer is a case of putting the cart before the horse. Navies do not exist to keep armour-plate

¹ The figure to which German battleships were limited by the Versailles Treaty.

firms in existence, but the reverse is the case. Moreover, by reducing the size of the ship, the call for armour-plates is sensibly diminished. The reduction in scale of the ship will also be a deterrent to anyone who is in a hurry to build; for, as she will be weaker than the present ship, no one will wish hastily to replace his present ships by smaller ones. The old ships will therefore be made to last as long as possible, all of which is definite saving to the taxpayer, accompanied by no loss whatever in security.

"No country would venture to go outside the limit of 10,000 tons, any more than it will venture to exceed the 35,000. How each navy utilised its disposable tons would be decided by its views as to strategy and tactics.

"These are important points. There appear to be people who imagine that there is some military reason why a "battleship" should carry 16" guns, a mass of armour, and so forth. There is none. These guns and this armour have been introduced in the struggle to produce something more powerful than what is possessed by an enemy, or possible enemy. This is not a military but a mechanical reason. Now that men are discussing it in a friendly fashion, eager to reduce the cost of defence, they have such an opportunity as has never occurred before. They have the people behind them.

"The sole qualifications for a man-of-war are that she shall be able to go to sea and fight. There is a limit in size below which she cannot do these things: there is also a limit beyond which it is quite unnecessary for her to go. I have suggested

10,000 tons, but this is guesswork – it may be 6,000 or 14,000. I am sure it is not more.”

The late Lord Haldane commended this proposal. He wrote :

“I hope that the impressive letter signed ‘Admiral’ which appeared in *The Times* of Wednesday will not escape the attention of those engaged in conducting the negotiations about a general restriction of naval forces which are taking place at Washington. The suggestion is that restrictions not only of numbers of ships, but of their size, should be discussed.

“If no nation were to produce in the future war-ships of more than 10,000 tons, or even 14,000 tons, the saving in competitive expenditure would be very great. Since the days when the Dreadnought policy became general, expenditure has increased vastly. If size were limited by general agreement, the relative military situations would be unaltered, as the letter points out.

“The question does not appear to be receiving attention : yet it is not only of crucial importance, but a highly practical one. It arises in addition to, and quite consistently with, the principle as regards numbers, which is at present under discussion.”

Admiral Sir Cyprian Bridge, one of our recognised naval thinkers, wrote in a similar vein :

“Please do not think me presumptuous if I take it upon myself to say that by the publication of

'Admiral's' letter in *The Times* to-day you have rendered great service to the cause of naval efficiency as well as to the cause of national solvency. Persistence in the extravagantly costly 'building slip competition' has already gone a long way towards making our burdensome taxes still more onerous, and further persistence in the same course can hardly fail to result in either a revolt of the taxpayers or ruin. Much of the huge expenditure on naval shipbuilding during the last fifteen or sixteen years has been nothing but waste. As 'Admiral' in his letter says, 'the growth in the size of the ship has not increased the strength of any Power.' We have apparently now reached the stage where naval strategy and naval tactics must be given their rights, no matter what opposition may be offered by the material school.

"It would be absurd to fix the precise limit of a battleship's tonnage: but *no one has ever yet been able to prove that it ought to run into five figures.*"

This attempt to obtain some studied and scientific consideration of whether ships of the great size of 35,000 tons were really necessary met with no success. The idea was brushed aside. No reasons were ever adduced in public for a refusal even to consider these arbitrary figures – 35,000 for a "battleship," 10,000 for a cruiser; indeed when, a few years later – in 1926 – the question again cropped up, the present writer was informed that not only was 35,000 tons not unnecessarily large, but that it was impossible to build a ship, capable

of performing the functions of a battleship (whatever those functions may be), of any smaller size. Not only was the figure irreducible, but an even higher figure might have to be asked for.

Nevertheless, not many months later, it apparently proved possible to propose a reduction in the irreducible: for Great Britain went to the Conference at Geneva with a proposal to reduce the figure by 5,000 tons.

This was not the end. In 1929, a bare two years later, a reduction of about another 5,000 tons was suggested as one of the proposals for the London Conference. Thus, within a period of ten years, the estimate of the minimum size of a battleship had fallen from 50,000 to 25,000 tons: for we can hardly imagine that the Admiralty in 1920 would have proposed what it considered an unnecessarily large figure. If, however, we make allowance for the competitive element that still existed before the Washington Conference, we may say that opinions had changed to the extent of a reduction of 10,000 tons, or 28.5 per cent.,¹ in the period 1921-1929. It is difficult to discern in this any evidence of scientific thinking, any attempt to discover, or to observe, a governing principle in this important matter of size.

This, however, does not end the matter, for the French *projet de loi* has assumed an even smaller size - apparently one in the neighbourhood of 23,000 tons - to be sufficient for a "battleship"; while other and lower figures have been suggested such as 15,000 and 10,000 tons, and even less, by

¹ Viz., from 35,000 to 25,000 tons.

sea officers not entirely ignorant of sea warfare, both in England and in other countries.

Are there not, then, to put it at the lowest, *prima facie* grounds for supposing that if we do but turn our minds resolutely to the examination of this problem we may be able to arrive at some conclusions on this matter less vague than those which dictated the 50,000 tons of 1920, the 35,000 of 1921, the 30,000 of 1927, and the 25,000 of 1929?¹ Is it indeed possible, in the light of this summary, to feel that any scientific processes of thought have informed an exploration which has resulted in such widely differing views, at such short intervals; views which, when the cost per ton of a ship is about £200 – and may be much more – effect so great a difference in the cost of each individual ship, and of navies as a whole?

The present writer in November 1929, feeling (in Burke's words) that this was "one of the few moments in which decorum leads to higher duty . . . when any, even the slightest chance, of doing good must be laid hold on, even by the most inconsiderable person," suggested in two letters to *The Times* that this should be considered in the then forthcoming London Conference. His proposal has since been described as a "pernicious suggestion," on the grounds that it would lead to competition through the invention of a new type of fighting weapon: a remark which indicates not only inconsistency, but also how little the problem is understood by those in authority. Inconsistency, because all the limitations in numbers applicable

¹ Or the 20,000 of 1931, if report since this book went to press is correct.

to the larger and more costly ships could equally be applied to the smaller ships as they have been to the smaller classes. Of this there is no question whatever. Nor is there any question that 15 battleships, costing about £1½ millions each, cost less than 15 at £8 millions each – a difference of not much short of £100 millions sterling: a figure apparently too paltry to be considered, even when we are told that the great and pressing need of the day is economy in public expenditure throughout the world.

As it was with the “battleship,” so it was with the “cruiser.” Although, before the war, vessels were capable of performing those detached duties which fall to fighting ships, and also those duties of reconnaissance and co-operation which are called for by large bodies of ships, on a tonnage of less than 6,000¹ tons, and although nothing whatever in the experience of the four years of war had showed any need of larger vessels for either of those purposes, a figure of 10,000 tons was adopted for the cruiser. It is true that, towards the end of the War, cruisers of about 9,500 tons, mounting 7.5” guns, were laid down in this country: but it is equally true that this was dictated neither by strategical nor tactical needs. Germany had sent out one commerce destroyer – the *Wolf* – mounting a 7.6” gun; possibly it was thought that she might send more. But as any British cruiser then at sea, mounting 6” guns, could, without a shadow of doubt, have dealt with her (and none knew this

¹ The *Sydney*, for example, the largest class of “light” cruiser, was of 5,400 tons.

better than the captain of the *Wolf* himself, who discreetly avoided approaching a convoy off the Cape, defended by a cruiser armed with 6" guns), so there was not the smallest need for this new and costly type of fighting ship. She was as pure a waste of money as the gigantic submarine mounting a 12" gun, which appeared at the same time; the child of megalomania, for which, when she was completed, no useful service could be suggested by a single soul in the Admiralty.

The existence, before the war, of larger cruisers – vessels reaching 14,000 tons – was not due to any strategical necessity, but wholly and solely to the fact that other nations, beginning with the Russians in their *Minin* class, had built "armoured cruisers." To these ships Britain had replied with similar vessels. The French later, in their short-lived heyday of enthusiasm for the *guerre de course*, followed suit with their *Dupuy de Lôme*, and a new British "armoured cruiser" type developed in consequence, growing eventually to the exaggerated forms in which we saw it in the 14,000 ton *Defences*. The reason for this was competition alone. One nation was trying to outclass her rival by the building of larger and more powerful ships, irrespective of whether the functions which these ships were built to perform called for vessels of the sizes reached. Admiral Makaroff, a great supporter of the large and contemner of the small cruiser, who looked upon small cruisers as luxuries only, forgot, in his advocacy of the policy of building such ships, that the rival whom he hoped to defeat was also capable of building them; precisely as the

British Admiralty, in their policy of outclassing the Germans by their Dreadnoughts, and then by their Super-Dreadnoughts, forgot that the Germans were capable of building such ships themselves.

Passing from the methods of apportioning size to individual ships, to those of apportioning strength to navies, we find an equally arbitrary and unscientific course of action adopted in the late Conferences – that based upon “ratios,” and in the belief that the naval needs of a nation’s security can be expressed in terms of tonnage. In the circumstances of the Washington Conference there was much to say for this expedient. It was not ill-adapted to the conditions of the moment, when what was needed was a means, however irrational, however little adapted to permanent use, to stop that flood of expenditure and ill-will with which the maritime nations were then threatened. It should, however, have been made clear to statesmen that, although this expedient was effective for the emergency, as an old waistcoat may serve to plug a hole in a leaking tank, it was far too unscientific, far too little related to realities, to serve as a perpetual principle for limitation. It was, in fact, invaluable as a stop-gap, and as such, and no more, it should have been recognised; to be reconsidered, re-examined philosophically and in co-operation, before the nations should again come together to make their permanent settlement. Its temporary character was indeed made obvious by the deep offence given to France by the figures assigned to her navy. No one who has taken any pains to inform himself of French opinion is unaware that

the allocations then made to her were most deeply resented by that nation, who, until recently, had been the second naval Power in the world: nor would have supposed that she would accept *en permanence* restrictions upon her freedom to furnish herself with what she, with her logical processes of thought, regards as necessary to conform with the guiding principle of Security. France was bound, sooner or later, to react strongly against these mathematical conceptions, conceptions so wholly alien to her methods of thinking and to her trained military mind. We have, in fact, witnessed a sort of accountancy not unlike that of which Lord Macaulay wrote when he said of the East India Company, "The assistance of the most skilful accountants has been called in. But the difficulties are such that no accountant, however skilful, could possibly remove. *The difficulties are not arithmetical, but political.*"

It was at the time of the Conference of 1921 that the word "parity" came into existence. It came with a purely arithmetical connotation, and without any qualification attached to it. "Parity" implies equality in some form. Equality in, or with, what? Is it equality in a purely mathematical sense? and does "parity" refer to quantities of force or to security? There is a wealth of difference between those ideas. *Mathematical* parity, in its actual application, can result only in *practical* superiority of one nation over another. For example, parity in naval armaments between two adjacent Powers one of which is exposed to, and the other immune from, vital injury at sea, would

place the former at the mercy of the latter. Owing to the varying conditions of nations – conditions geographical, military, economic, and commercial – parity of material (in the present connotation of the word) is unquestionably *imparity* of security. The only conditions, in fact, in which “true” and “material” parities could coincide would be those of the wholly impossible existence of two exactly similar islands, each producing the same goods, dependent upon the same imports, possessing the same populations, and equidistant from all other countries: a condition which, as it is needless to say, exists nowhere in this world of ours.

Professor Shotwell, in an article in the *New York Times* in March 1930, wrote: “The kind of naval parity which the United States needs, and should insist upon, is that measure of power which will secure and guarantee parity of treatment on the high seas by any other nation in the world both in peace and war. The Washington Conference achieved this aim for the time being by a purely mathematical formula. Its simplicity and mathematical conclusiveness tends to impress itself not only upon all our subsequent negotiations, but upon our very way of thinking. The only meaning which the phrase ‘naval parity’ conveys to most people is the equation of weight and strength of armament . . . mere mathematical equation in naval tonnage brings only a specious resemblance of naval parity unless it achieves those aims which are the true pacific purpose of the whole negotiation.”

These are wise and statesmanlike words. They are no less sound strategy, as good statesmanship

should always be. And what are those aims to which Professor Shotwell refers? In kind they are many: but they may all be summed up in the one word, "Security." Ultimately, say what may any enthusiast for reduction of armaments, the final object of armaments is security. Whether armaments are necessary for security is an arguable but a wholly different question. What is beyond doubt is that the sole reason why nations retain armaments lies in a lack of confidence in international agreements. They desire to guard themselves against the failure of the international machinery for maintaining good relations, a machinery which, it must be admitted, is still in its elementary stages of development, and has not been submitted to any tests comparable to those applied in the processes of everyday life.

Hence armaments, rightly or wrongly, remain, because statesmen do not feel safe without them. The probability of their being called upon to settle international differences has, however, we may surely and reasonably hope and believe, been reduced: but the mere fact of their continued existence is evidence of the fact that it is believed by the statesmen of the world, or by those whom they represent – the peoples – that the *possibility* of their being required to defend national interests still remains.¹ If that be admitted, one conclusion only is possible: that is, that they must be adequate to furnish the measure of security desired.

¹ Thus Mr. Graham, speaking on the safeguarding of dye-stuffs, remarked that all Governments must make provision, so long as the world remained in its existing condition, for defence (*The Times*, December 5, 1930).

The situation has its analogy in the world of shipping. The probability of wreck and collision has been reduced by improved methods of navigation, by the use of wireless for obtaining positions at sea, by lighthouses, by maritime surveys, by international regulations for preventing collisions at sea. But, while these have reduced the *probability* of accident, the factors of human error and acts of nature remain, carrying with them the *possibility* that collisions may occur. Hence provision is still made to render as secure as possible the lives of those who travel by sea, if human error or acts of nature bring about an accident. Ships are consequently built with a number of bulkheads, calculated to enable them, in all but most exceptional conditions, to float. Wireless is provided (to an extent governed by an international agreement which imposes equal burdens, or equal limitations, upon the ships of all nations), by means of which help can be summoned. Boats are furnished to keep the travellers afloat until they can reach safety on land or be rescued at sea. We should, indeed, think him an improvident shipowner who, recognising the possibilities of accident, should (if the law permitted him to do so) hamper his earning capacity by building his ships with bulkheads insufficient in ordinary conditions to keep the ship afloat to put in wireless, without operators; to provide boats, but in inadequate numbers. Clearly he would merely be spending his money to the detriment of his business. His safeguards would be illusory. None would be capable of doing that for which it had been provided. It is correspondingly

improvident to build a navy, costing millions, which, if the occasion for which it is built should arise, could not provide the security to furnish which alone it exists.¹

The system of "ratios," as applied, bears no real relation to the needs of security. The very figures adopted were no more than arbitrary. They were political compromises, though in certain cases in the battleship ratios the figures had, it is true, some strategical implications. Japan, for instance, was prepared to accept a proportion of battleship strength of 60 per cent. of that of the United States; but this was only because, in her geographical situation, that strength would suffice for her security. Separated by some thousands of miles from the United States, who, by the same agreement, would possess no fortified base nearer than Honolulu, Japan, possessing that proportion of battleships, would be able to prevent her antagonist from establishing and maintaining superiority in her own waters, and could therefore preserve the communications essential to her interests in the China Sea. To isolate her from Korea, from her vital markets in China, or from Europe, would require a superiority in battleship strength far higher than the 5.3 ratio. The figure, in fact,

¹ Mr. Noel Baker made a very false analogy (Hansard, June 2, p. 1834) of armaments with fire premiums. The true analogy is not the premium, but the fire escape. Precautions against the outbreak of fire are analogous to the Pacts and Treaties. The means taken to preserve life is the fire escape. As the *possibility* of fire remains though the *probability* has been reduced, the householder still provides himself with a fire escape. But he does not make it too short to reach the ground. He makes it adequate to give security if its use is called for. The navy that is too small to give security to the life of a nation resembles a fire escape that only reaches half way to the ground. The money spent upon it is wasted.

amounting as it did to strategical parity in that class of ship so far as defence – the object of her navy – is concerned, assured her security, in so far as security depends upon the use of force.¹ No less did it give security, and more than security, to the United States, for a Japanese navy of that or greater strength could not be any threat whatever to the interests of the United States.

On the other hand, the ratios assigned to France and Italy were wholly devoid of any strategical meaning. They did not represent the needs of security of those countries. They were accepted – for the time. The result of this reversal of the practice which has governed the quantitative element in naval strength for the last two hundred years was that an “escalator” or “safeguarding” clause had eventually to be introduced to the London Treaty to provide for the safety of the British Empire – a recognition of the fact that circumstances have not changed since Lord Haldane pointed out to the German Ambassador that the British naval programme had to be determined in proportion to those of other Powers.

The real truth is that this assignment of hard and fast figures – this “codification of navies” – however manipulated by adroit mathematicians and statisticians, cannot be made to represent national needs. Nor does it give, as some appear to suppose it to give, any assurance of economy by preventing competition. Competition in some form

¹ Whether it gives her security against the economic action of embargo is obviously a totally different matter, with which I am not here concerned.

—ingenuity, design, organisation — cannot be eliminated from a practical world, and it is far from improbable that the result of the rationing system has led to expenditure rather than to economy. A nation, knowing that it is going to be called upon to state its needs in writing, by which statement — reduced in all probability in subsequent bargaining — it will *in perpetuo* be bound, will not be inclined to state its needs at the lowest figure. Besides making allowance for what will be trimmed off its estimates in the compromises by means of which political agreements are usually reached, it has to make further allowance for errors in its own estimate to allow a “margin of safety” comparable to that allowed by engineers in the use of material. It will prefer to risk having too much to having too little: and, later on, a Government may not improbably find itself constrained by the pressure of public opinion to build up to that predetermined political figure, whether or not the political or other conditions in reality demand that building. This is not economy.

On this matter Professor Shotwell, in one of those illuminating articles previously referred to, quotes a leading Tokio paper, saying that Japan would be more free to plan a modest naval programme for itself if she were not invited to a world conference at which she was asked to measure herself with the other great Powers. “A programme,” the professor comments, “tends to narrow down to a slogan. When this happens, there is danger of the delegates abroad transforming the slogan into a sort of fetish.”

The same objection to the fixation of ratios, at a conference, explained in the Japanese paper, has been made to the present writer by Continental authorities.

It is indeed very necessary that the artificial and misleading character of the slogan of "parity" and "ratios" should be recognised before the nations again meet. Unless this be done, and a more scientific method of approaching the problem adopted, the next Conference will, like its predecessors, be governed by expediency – or what is believed to be expediency – rather than by principles, and the same result which has followed Conferences hitherto will repeat itself: and what can be more farcical than that Conferences designed to reduce expenditure should end by increasing it? For at this next Conference the question is bound to arise, "Are we all to continue to build fighting ships of the size of those of to-day?" This question was shirked – or burked – both at Geneva and in London, and for reasons which will not stand a moment's examination. It will not be possible to shirk it at the next Conference.

Words have, in fact, dominated the problem. Men have come to believe that there is some difference, expressed in terms of tons, between a "battleship" and a "cruiser," and to imagine that a "battleship" is a vessel of a particular tonnage; and, consequently, that if ships of that tonnage were not to be built in the future, there would be no "battleships." Yet, as every sea officer who knows his business is aware, these are pure fallacies. The battleship *Russell* and the cruiser *Drake*,

contemporary vessels, were of almost exactly the same tonnage — 14,000 tons — the *Drake* being a little the larger; and battleships of about 6,000 tons or less have existed within comparatively recent years — for example, the *Texas*. The difference between what are called the battleship and the cruiser does not lie in the tonnage of the ship, but in the use to which that tonnage is put. The functions of the battleship and cruiser respectively are expressed by the battleship quoted above having had a broadside weight of fire of 4,000 lbs. to the cruiser's 1,560, while the cruiser had a speed of 23 knots to the battleship's 18.

Further, to suppose that only ships of 35,000 tons can be "capital" ships is to forget that a "capital" ship is, and ever has been (in so far as the term has had any meaning assigned to it), merely the most powerful ship that contemporary circumstances permit or demand. In the Indian seas in the eighteenth century the 20-gun ships of the Bombay Marine were the "capital" ships of that force, for the simple reason that they were large enough to fight the ships of the local navies of Mysore or Sind. The largest East Indiamen were spoken of as the "capital" ships of the company. A "capital" ship, in fact, can be large or small, just as a "capital" city or "capital" town can be large or small. The word "capital" is not a measure of physical size. As originally used, it had no other implication than "principal," as Burke used it when he spoke of "some of our 'capital' men,"¹ or the East India Company when they spoke of the

¹ Burke to Harford, September 26, 1700. *Letters of Burke*.

"capital" islands – Mindanao, for instance – of the Dutch in the East Indies.

It is encouraging to those who desire to see this question resolved on scientific lines to observe that the artificial and political, as apart from the practical and strategical, character of the doctrine of "parity" and "ratio" is being more widely recognised. Not only do we find so sagacious a thinker as Professor Shotwell discerning clearly its fallacy, but also Mr. Walter Lippman. "Ratios are not, and cannot be, true measures of relative strength in actual combat, because it is impossible to frame a hypothesis which will correctly predict all the conditions of all possible future wars. A ratio is, therefore, really a *political device for expressing 'present agreements.'*"¹ Although Mr. Lippmann's "because" is lacking both in comprehensiveness and strategical accuracy, his realisation of the unsoundness and instability of the ratio system affords grounds for hope that a system which is something more than a "political device," and which takes as its foundation the object for which navies exist, has now some chance of being considered at the next Conference. Similarly, the French publicist, "Pertinax," makes a corresponding depreciation of the "ratio and parity" formula. "Parity," he writes, "is a very artificial notion. The same ship does not possess the same weight, the same military coefficient, if considered in the Italian harbour of Spezzia or in the British harbour of Malta. Its military coefficient is determined not only by its guns, its speed, etc., but by

¹ *Foreign Affairs*, July 1930, p. 510.

the naval bases which it can use, and by the industrial and financial organisation at its back. Parity ought not to be regarded as anything more than a rule of thumb or a slogan." This is undeniable truth.

If peace is to be lasting, if competition in armaments is to cease, there must be a real sense of security. The armaments of one nation must not be of such a strength as to threaten another. If nations should furnish themselves with armaments which are obviously in excess of the real necessities of security, they are bound to be regarded by others as threats. It was the excess of the German fleet over the needs of German security which precipitated the catastrophe of 1914.

Nations whose life depends upon the sea, to whom the sea is the artery carrying their life-blood, the sole means of communication between their territories, have throughout history been those which are designated "maritime Powers." Possessing great and scattered vital interests at sea, or possessions oversea, these have always needed security at sea. Freedom to move military forces across the sea to succour or reinforce the armies elsewhere, or to draw in scattered forces from without to the metropolitan theatre, is as essential to a maritime empire as the Roman roads were to Rome.

Britain's need for superiority at sea, her real defensive need, was admitted even by our late brave antagonist, Admiral von Scheer. "No one

will deny," he has written, "that Great Britain, with her divisions of empire scattered all over the globe, with her leading position in international trade, with her dependence upon oversea communications arising out of her insular situation and extensive industries, and finally with her strong hold on international commerce, has the right and duty of maintaining a fleet considerably larger and more powerful than those of other nations. This supremacy is ungrudgingly allowed her."¹

Superiority, however, is not something abstract. It must be expressed in quantitative terms relating to whatever is inferior. British naval programmes, as Lord Haldane remarked to Count Metternich, were determined in proportion to those of other Powers. This fundamental principle, of which the statesmen of this and other countries were fully aware, has been deliberately abandoned since 1921. The process of determination of strength has been reversed. The results have been unfortunate to all the Powers, and the economy which would have been possible has not been attained.

¹ Von Scheer on German Naval Policy, *Ency. Brit.*, xiiiith Ed., new vols., p. 220. The safeguard against her abuse of her recognised right of self defence, Von Scheer goes on to say, lies in the power which other nations possess to combine against her: and this safeguard is ample, whether action be considered in terms of economics or arms.

CHAPTER I

THE STRENGTH OF NAVIES

IF we are to endeavour to make any regulation of the strength of navies, it is plainly necessary to begin by considering what navies are, and what functions they are called into existence to perform.

How does any man proceed who desires to construct some instrument – a house, a bridge, a railway engine, a knife? He begins with a clear understanding of what that instrument is required to do; what, in fact, is the object of its existence. That which he eventually constructs will then be so designed that it shall be capable of doing what it is required to do, neither too small – for that would obviously be a total waste of money – nor too large – for that too would involve a waste of all that was spent in excess of the need: and not only a waste, but a weakening, for the money would be diverted from useful employment elsewhere. Each portion of the instrument will also be adapted to the performance of the part it will be required to play in the whole design; it will be large enough, strong enough, and so formed to render it capable of playing that part in fulfilment of the function of the whole.

This is a commonplace of every mechanical instrument: and what is true of one instrument is true of all, including that instrument of national defence, a navy.

What, then, is the function of a navy?

A navy is one of the fighting organisations with which a nation provides itself with the object of defending the persons, the territories, and the interests of all its peoples. Those persons, interests, and territories are normally the care of external policy. But if differences arise which cannot be adjusted by discussion, by arbitration, or by any existing machinery of the international organisation, force comes into play. Thus a country may be compelled by force to comply with demands which it believes would seriously injure the interests of its peoples. Pressure so great and so unescapable may be brought to bear upon it that it has no alternative except to abandon either a policy regarded as essential to its interests, or a territory which it is called upon to cede. It is to prevent that pressure being brought that fighting forces exist.

British external policy, whether directed towards the occupation of certain territories or positions,¹ the preservation of the integrity of foreign kingdoms,² or towards the formation of alliances, has always been a means towards a definite end, that end being security for the interests of the people; and we may justifiably believe that a similar intention governs the policy of other great Powers.

In all cases these diplomatic means have a strategical orientation. The integrity of Turkey,

¹ e.g. the Siamese question of 1893, the Persian Gulf, Egyptian, Tangier, and Straits questions.

² e.g. the Low Countries' problem of the eighteenth century, culminating in the Treaty of 1839; the Turkish question; the integrity of Afghanistan.

or the preservation of the *status quo* in the Persian Gulf, have been regarded as essential geographical elements in the problem of the employment of the British fighting forces.

The specific object of any navy – and I speak not of the British navy in particular, but of navies in the general sense – is to contribute towards preventing pressure from being brought to bear upon its nationals. In what form, then, can pressure be brought upon a people?

There are two ways, and two only, by which a country may be forced to surrender rights or territories to which it attributes importance. Pressure may be brought upon its people by the invasion of its territories, or some parts of its territories; or by the cutting off of that external traffic by means of which it maintains its national life: "You take my life, when you do take the means by which I live." The choice which Holofernes had to make between assaulting Bethulia and cutting off its water-supplies is an epitome of all grand strategy.¹ It is the choice which the statesmen of warring countries, whose adversaries depend upon external communication, have always had to make. The cession of a portion of a nation's territories may, however, be enforced without bringing direct pressure upon the people as a whole. It may be sufficient to conquer and occupy the disputed territory, and subsequently successfully to resist all attempts on the part of the opponent to expel the invader or to force evacuation by counter-pressure in some form elsewhere. When expulsion is

¹ Book of Judith, vii.

recognised as impossible,¹ or if the effort to expel involves additional dangers,² or will involve making an effort the cost of which – in whatever form it may be computed – exceeds the value of the object,³ the cession will be made.

Thus, the object of a navy is, in association with land forces, to prevent either the investment or the invasion of a nation's territories: and, if the nation be (as in the case of that "nation" which we call the British Empire) scattered in all parts of the world, these fighting forces have the duty of preventing not merely the investment or invasion of a single area, but of a number of widely separated areas.

The strength of a navy is conditioned by two things, the one absolute, the other relative. In so far as it is absolute it is partly governed by the extent, and the distribution, and the importance of that which it is required to defend: in so far as it is relative, by the strength and nature of those forces by which its interests may be attacked.

If we assume, as every nation does in reality assume (whatever words it may employ to gloss over its acts), the object of its forces to be security, its need is to possess force of such a character, and in such quantities, as will afford it a reasonable degree of safety against being forced to surrender its vital needs to either of those measures.

It should be unnecessary to point out that the

¹ e.g. the reconquest of Canada by France; the reconquest of Silesia by Maria Theresa.

² e.g. the continuation by Russia of her war with Japan, which would have brought about a Russian revolution.

³ e.g. the Spanish attempts to reconquer the Low Countries.

vulnerability of nations to vital injury varies: and it is *vital* injury alone that can be considered, for it is by vital injury only that surrender can be enforced. To some nations invasion by land is the immediate danger. These, therefore, devote their attention primarily to their forces on land. To others, the immediate and greatest danger lies in their dependence on external supplies which lie exposed to attack: these, therefore, must make provision to defend those supplies.¹ This does not mean that the sole defensive forces in the former case can be land forces, or in the latter sea forces, but that the *primary* arms of each are land and sea arms respectively.²

SECTION I: DEFENCE AGAINST INVESTMENT

I have used the word "investment" to express the process of effecting such an interruption of the external commerce of a country as will deprive it of the power to continue its national existence,

¹ To take an example. The fleet of Spain in the eighteenth century was a necessity to her, because she drew all her resources – mainly in specie – from her colonies. Though she might accumulate specie in peace, it dissolved quickly in war; and she was in the precarious state of being cut off from supplies essential to her. She must therefore be able to defend those colonies, and that specie on its voyage. The galleons which carried it must be furnished with escorts, as well as being themselves armed.

² e.g. General Debeney alludes to the difference between the problems of national defence. "England has an immense colonial domain, but her territory is an island protected above all by the navy; Germany is purely continental; Italy needs to defend both its (home) territory and its colonies, but these lie in the Mediterranean basin; France has long territorial frontiers and a colonial empire scattered in many parts of the world (*Sur la Sécurité Militaire de la France*, p. 26). The French army of the budgetary year 1930 is divided as to three-fifths in France and two-fifths overseas, 130,000 being in North Africa. In a continental war it is essential for her to transport the overseas detachments to France. The Mediterranean is, to her, merely a broad river running through two parts of French territory.

under conditions which its people have the power or the will, either physical or moral, to stand.

The external commerce of a nation may proceed wholly by sea, or partly by land and partly by sea. The trade of islands can, obviously, travel by sea only: and it is deserving of notice at this point that the British Empire is an empire of island nations. With the single exception of Canada, which has an important trade across its land frontier, all the remaining nations of the Empire are economic islands; of the £400 or so millions of external trade of India, for example, only the almost negligible quantity of some £20 millions is conducted across its land frontiers. The trade, on the other hand, of a country which is a portion of a continent, provided it is connected with other countries by convenient and economic means of land communication – railroads, roads, rivers, and canals – proceeds in approximately equal proportions by land and by sea, varying between 40 and 60 per cent.

Thus, while the total severance of the sea routes would completely isolate, economically, an island or group of islands (for the amount of essential goods, goods vital to the life of a community, that can be carried by air is negligible), and bring about its unqualified submission, a “continental” nation is in no such precarious a position. Even if it should be both politically and strategically practicable to erect a wall of ships – a continuous and unbroken “cordon” – in the waters of approach to all the ports of such a country, the maximum degree of investment by a sea power alone would be in the neighbourhood of 50 per cent. so long as the land

frontiers remain open and there are means of adequate communication across them.

Unquestionably, a reduction of 50 per cent. in external commerce would be a serious thing to any nation: but it would not be a complete investment; and the resisting power of a nation is very great. The examples of France in the Napoleonic wars, and, of Germany in the recent war, furnish evidence of how such nations can exist and resist without direct communication by sea with the outer world. Indirect communication can avert the worst consequences. What, however, in practice are the actual facts of the possibility of effecting even an approach to a 50 per cent. reduction?

The total suppression of the sea-borne commerce conducted by a nation in peace is possible only if *all* the shipping entering and leaving its ports can be stopped. The commerce of every country is carried partly in its own bottoms, partly in those of other nations. That which is carried in neutral bottoms is immune from interference except when its ports of destination or departure are actually under declared blockade, or when its character is contraband. I am, of course, perfectly aware that the value of this immunity will be denied, with a citation of extension of contraband under the conditions of modern war, as exemplified in the late war. I shall not, however, break the argument to explain my reasons for holding that under the world conditions of to-day, altered as they are by the Pact of Paris and the Covenant of the League of Nations, this supposition does not hold good, and will confine myself to the

strategical question of blockade. Let me, then, examine the extent to which a continental country is liable to the danger of having to surrender some national right, some territory, or any such other claim deemed to be of so great an importance to the interests of its people that no solution of the dispute proves possible by diplomatic means: and therefore that to force alone the decision must be referred. By so doing we shall be able to make some estimate of the strength at sea a nation requires in order to secure itself against this form of affliction.

(a) *Blockade*

The loose manner in which this term is employed is at the root of most of the misconceptions as to the vulnerability of a country to this most rigid, effective, and far-reaching form of investment. The looseness is not inaptly illustrated by the freedom with which protagonists of the many (and widely differing) meanings of the term "Freedom of the Seas" contradict themselves in their endeavours to impress upon Great Britain how unwise she is to uphold those so-called "Maritime Rights" which are the expression of centuries of experience. On the one hand, she is adjured by her well-meaning friends to abandon blockade because, under modern conditions, it is impracticable. Submarines, aircraft, mines, *et hoc genus omne* of modern inventions are said to have rendered it impossible to maintain a blockade. Hence, it is pointed out, it is obvious that she is foolish to insist upon the retention of a power that cannot, in

actual practice, ever be employed. It is the more foolish (so she is also told almost in the same breath) because of all Powers in the world she is herself the most susceptible to blockade – to this very form of injury which, it has been asserted, has been rendered impracticable by modern inventions. Thus, according to these logicians, while a Power superior at sea cannot impose and enact blockade, a Power inferior can do so – a truly singular conclusion.

The trade of a country is conducted through a number of ports, usually widely separated. A blockade of "the country" demands – if it is to be exclusive – a blockade of each of these major ports. That is to say, it demands the distribution of fighting forces in such positions relative to those ports that no shipping, or only a comparatively small proportion of that which normally uses them, both national and neutral, can enter; and those forces must be in such strength as to be capable at any time of meeting whatever fighting force the enemy may send against them to break the blockade. In order that this shall be possible, a sufficient margin of force must exist to provide those essential reliefs for these detachments which, by force of necessity, must return at frequent intervals to their own ports to refuel, to revictual, and to repair those damages which, in the course of service, they are bound to suffer, either from the enemy or the elements.

It needs but little power of analysis to appreciate that the superiority required to conduct a complete investment of the sea frontiers by the means

of blockade is very considerable. In the old days of the blockade of the port of Brest only, when ships of war could keep the sea for six weeks and more, it was calculated that in order to maintain a squadron of twelve ships off Brest required a total available force of twenty¹ – in modern language, a “ratio” of ten to six. Under modern conditions, ships cannot keep the sea for as many days as they then could weeks: and it is plain to anyone that the more frequent the reliefs, the higher must be the number to maintain them. Nor, under modern conditions, is it to be supposed that the absences of ships for purposes of repairs from the injuries received in service would be either less frequent or shorter than in the past. The injuries then suffered were in the form of loss of spars and cordage, straining of hulls, damage suffered in occasional action, and, possibly – when there was not a complete loss from wreck – repairs to a ship strained by taking the ground. To-day the blockading force will be attacked under water and from the air. Mines will be laid in its cruising-ground, as they were off Port Arthur where they caused the total losses of the *Hatsuse* and *Yashima*: submarines and aircraft will sometimes get home with their torpedoes and bombs, and necessitate – when they do not cause a total loss – returns to harbour for repair not less frequent than those caused by the loss of spars in gales or the straining of hulls.

It has been remarked that if investment is to be

¹ The figures vary according to the season of the year, the station, and the degree to which anti-scorbutics were effective.

complete, all the major ports must be closed by this process of blockade. That is to say, that a force of ships, with probably no less a margin of superiority than that needed in the past over any armed forces within, must be constantly maintained in the approaches to all of those ports. It needs but little acquaintance with sea-affairs to understand how remote is the danger to a continental nation of being compelled to surrender some vital interest by the action of national blockade: and those who have studied the strategy of British wars of the past are aware that it was not by means of "national blockade" that Britain attempted to compel compliance upon, or defend herself against, an enemy in any of her single-handed struggles. Even the most extensive maritime blockade which she declared – that of May 16, 1806 – was confined to the coast from Brest to the Elbe: it did not include the Atlantic and Mediterranean coasts.¹

Partial blockades are a different matter. A single port may be of essential importance to a country, either because a high proportion of the nation's trade passes through it, because the nation's needs cannot be met through its other ports, or because of the facilities peculiar to the port for landing certain cargoes; or for other reasons familiar to all of those who are concerned with the problems of shipping and the distribution of goods. In such a case, the effective blockade of that single port may

¹ I am not referring to measures used of a diplomatic character, which do not affect the question of armaments in respect of this element in the problem.

constitute a blow of such weight as to be, if not decisive in itself, at least a very grievous injury in association with the other injuries that are the result of war. Even to effect that partial investment which is implied by a blockade of a single port requires a very marked superiority: and that superiority varies according to the geographical conditions. This is plain. It requires no more complicated an instrument than a map, and no more intelligence than that possessed by any educated man, to discern how greatly the power to resist blockade is affected by the conditions of distance, of the relative positions of other countries, and of the possession of bases.

Some writers, making an analogy with the game of poker (in which it is said that a "second best" hand is of no use), assert that a "second best" navy is equally useless. So far as the operation of blockade is concerned, it is, however, obvious that the analogy does not hold good in theory. The test of experience corroborates the conclusions of reason, for "second best" navies, as the past has shown, cannot be forced to action; can unquestionably avert the major danger of sea investment; and, if directed with knowledge and skill, can put their superior opponents into positions of extreme peril. That there are conditions in which a "second best" would be of little utility is perfectly true: it could not conduct an invasion across the sea against a superior force. But blockade is not one of those conditions. There is, for instance, not the smallest doubt that a "second best" Japanese navy is fully competent to ensure that no blockade of

the Japanese ports by any maritime Power of to-day is practicable – until that navy is defeated.

Thus one thing stands out clearly and is beyond the possibility of refutation. Inasmuch as it requires a great superiority to conduct a blockade, it follows that to prevent a blockade being established does not necessarily demand equality. In fact, in considering that element in the problem of disarmament which is now under review – the extent to which the strength of navies is dictated by the needs of security against blockade – we can come to a plain conclusion: that something less than equality is sufficient to prevent the establishment of blockade, even of a single important port, but much more so of a whole national system of trade.¹

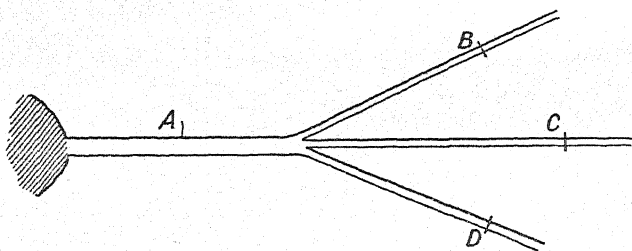
(b) Sporadic Warfare

While blockade strikes at the trunk, at the whole mass of trade where its routes converge and it concentrates in the approaches to the home country or its ports, “sporadic” warfare strikes at the streams of trade which, flowing from and towards all parts, converge into, or diverge from, that main body; as streams feed a river, or the branches of a tree spread out from the trunk. If those streams or branches be cut or diverted, the river is dried up, the trunk ceases to bear fruit. Although experience has shown the difficulty of making a sufficient impression upon the total volume of

¹ The rum-running campaign affords an example of this. If the smuggler had a small force of armed vessels which would attack the “cordon” wherever it chose – unless confined to harbour by a superior force – the amount of smuggled liquor that finds its way into the country would greatly increase.

trade by sporadic attack – the *guerre de course* – this does not mean that that form of attack is intrinsically ineffective, and that therefore it is not necessary to make provision for defence against it. The reason for its not proving decisive is not that it is in itself an impossible means of compelling surrender, but that adequate provision in the form of fighting forces has been made by those attacked to keep the losses within bounds which prevent them from becoming vital. These facts are fully illustrated by the submarine campaign – a campaign of sporadic warfare which came very near to being decisive, and was only prevented from so becoming by the provision of adequate forces, and their proper employment in defence.

It should indeed be plain that the result is the same if a single main road by which a town is supplied is commanded by the single force at A, or if the two or more other available roads feeding the main road are commanded at B, C, and D. The goods cannot in either case reach the town.



Thus, a maritime power whose force is insufficient, either relatively or absolutely, to occupy the approaches and to command the main stream

of its opponent's commerce by blockade, is prone to endeavour to attain its ends by attacking the outer streams. And in this it may have two objects. If the attack should be disregarded, and no protection given, the object – investment, whole or partial – is achieved. The enemy's commerce fails to reach the point of convergence in sufficient volume to meet the needs of the nation; and, however strongly that particular point may be held, the effort is useless if the trading-ships never get so far. If, on the other hand, defence *be* afforded, the force detached for the purpose of giving that defence must be drawn from somewhere: a diversion of force is achieved, the concentration of the enemy is weakened. His power of making use of his superiority is definitely reduced. This diversionary aspect of sporadic trade attack is one which was very familiar to the French strategists of the eighteenth century.

Thus, if a nation is to render itself secure against what I have called "investment," it requires, in addition to such a force in the mass as shall be sufficient to safeguard itself against "blockade," such a further force as shall be sufficient to provide adequate guards against sporadic action. And, as scattered forces are liable to be attacked in detail, they must either be furnished with effective cover, or, if effective cover cannot be ensured, the individual guards must be strong enough to resist such forces as it is reasonable to expect will be risked in attacking them.

The number of vessels needed to afford direct defence against sporadic attack is governed by two

principal factors – the number of points simultaneously requiring defence, and the force with which they are liable to be attacked.

The number of points requiring defence is, however, qualified by the factor of possibility. There are places in which trade is liable to attack, and at which, in consequence, it would be necessary, if that trade is to continue, to afford defence. But it may be that it is useless to attempt even to provide such defence, because the situation is such that vessels cannot operate in those parts, and that one must accept the certainty of the loss of trade in that area in certain wars: as the British had to accept the loss of their trade in the Baltic in the late war. Whether it is practicable to afford defence is, in many cases, a question of the possession of bases. If the Allies had not had the use of their several bases in the Mediterranean in the late war, no increase in the number or strength of the defending vessels, or in their endurance, which it would have been within the region of practical possibilities to provide, would have enabled their shipping to move through that sea in the face of even the inferior forces of the Central Powers.

The fundamental error at the root of the doctrines of "ratio" and "parity" lies in the assumption that the requirements of different countries in this respect of defence against this form of injury is a purely relative matter. It is nothing of the kind. It is almost wholly one of an absolute character. The number of ships needed by a country for its security against investment in this form is governed by the number of points requiring

defence in which it is practicable, for geographical or political reasons (e.g. if it have allies), to afford defence.

It is strange that so simple a fact should have escaped the attention of those who have devoted so much trouble to making mathematical calculations of cruiser and destroyer tonnages. The slightest consideration of the nature of the problem would have made it clear. At the risk of making the obvious more obvious, let anyone consider the analogy in land warfare. An army may be supplied over a line of communications which passes through country in which it is possible for detachments of the main army to operate; as, for example, the British army in the Transvaal was supplied by a line of communications from Port Elizabeth or Capetown to its headquarters in the field, or the supplies of the French army under Soult in the Spanish Peninsula had the length of Spain to traverse.¹ The number of troops required for the defence of such a line of communications is not determined directly by the total number of the enemy. It is determined firstly by the number, position, and nature of the vulnerable points on the route – the bridges across rivers or valleys, the culverts, tunnels, defiles, and so forth; and by the number of convoys – rail, motor, or waggon trains – requiring escorts. It is determined in the second place by the scale of reasonably probable attack. Those detachments holding blockhouses, forts, or

¹ With the qualification that the army lived largely on the country; food was procured by foraging. But foraging employs large numbers of troops, for reasons which are familiar.

whatever form fixed defence was adopted, and those acting as escorts to the trains or waggons, had to be of sufficient strength to guard that which was under their charge against attack in such strength as it was considered probable the enemy might develop. In some parts, nothing more than a small raiding-party of a few mounted men was to be expected. In others, a sally of a large body was within the range of practical possibility. Thus the formula – if so rigid a word may be used – governing numbers is, roughly, the number of points, fixed and moving, needing defence, multiplied by the number necessary to defend against the reasonably probable scale of attack.

At sea, the number of vessels needed in detachments is governed by exactly similar principles. It is totally erroneous to suppose that the number of what are called “cruisers” is an arbitrary figure, determined, as has been said upon one occasion, by what a Board of Admiralty expect they can persuade the Government to provide. The defence of shipping is furnished by the same methods as the defence of military communications on land. As in the operations on land there are certain areas in which great injury can be done, so there are similar areas or positions at sea. Ships – that is, “garrisons” – may be stationed to cruise in those areas and, as it were, hold them against, or render them dangerous to, an enemy. Ships passing between those areas are liable to attack, so the shipping can be assembled and sailed in bodies, called (as in the military case) “convoys,” under a protective escort; and cruising forces and escorts are

calculated upon the reasonably probable strength of an attacking force. It is perfectly true that the number will differ according to who the enemy may be, but this merely implies that the calculations must be based upon the most dangerous situations that may arise: and, as in the military case, escorts may require strengthening when the convoy has to pass through an area in which it is possible for a strong enemy force to operate; that is, within striking distance of an enemy base. So the escorts to the great convoys in the past wars were strengthened by or from the Western Squadron when passing through the danger area of the Soundings; and, analogously, in the late war, destroyer escorts were furnished in the same area, because those areas were within striking distance of submarines operating from the bases in the Bight and Flanders.

Possibly the "absolute" character of the requirements may be most easily appreciated from an actual example. In 1810, Admiral Sir E. Pellew, later Lord Exmouth, one of the finest seamen of that great period, on his return from the command of the East Indies squadron, was called upon by the Board of Admiralty to report the number of ships of the line and frigates he considered necessary for the defence of trade in the East Indies. The gist of his reply was as follows. Dealing first with the classes of ships required, he said:

"The French force remaining in India, though greatly reduced, still consists of heavy frigates, and the employment of some frigates on that station capable of meeting them upon equal footing

appears therefore expedient. The French privateers which issue upon our country trade there from the Isles of France are for the most part of small force – and the brig sloops of war on the station are able to cope with them. The Board must be aware that *a calculation of the entire force requisite to be employed in India must not be founded on the numbers of the enemy*: the French have no trade to protect, and the Dutch have very little . . . whereas the immense trade of the British colonies alone forms a most important object of protection so *scattered and divided as to require a very large force to furnish it with adequate security.*”

Besides the frigates and sloops, he recommended a force of four ships of the line. The reason for this lay in the possibility that the French might send ships of the line thither, and could do so. “Frequent expectation,” he wrote, “has been formed that the detached squadrons which have occasionally escaped from the enemy’s ports in Europe were destined for India. These have generally consisted of five or six line of battleships, and should such a force at any time hereafter proceed to India, the Commander-in-Chief on that station could oppose no effectual resistance with a force less than that above mentioned, which would at least enable him to make head against them until reinforced from England.”

Thus, *relativity* entered into the question so far as the largest class of ships, which might be expected generally to operate as a body, was concerned. Vessels of a strength capable of meeting those which the enemy had it in his power to

maintain in those waters were required. Moreover, the Dutch had a force of five ships of the line at Batavia, and if the command were placed in energetic hands the China trade might be intercepted unless convoyed by ships of the line when in that area.

The distribution furnished the criterion of numerical strength. Pellew enumerated the stations in which it was necessary to maintain vessels cruising. These were, *inter alia*, off Madras, Bombay, Acheen, Galle Head, in the Persian Gulf, along the Malabar coast, in the head of the Bay of Bengal, in the Red Sea, in the Malacca Straits, in the Java Sea: while convoy escorts were needed for the coastal trade from Bengal, and the China trade.

In that report of a great seaman, experienced in the conduct of war, we have, in epitome, the so-called "cruiser problem" of the Empire – or of any other country. It is merely an application, within a limited area, of the methods by which the requisite strength of the whole was calculated. This is not to say that the numbers, or the stations, considered proper under the conditions of that time, would necessarily be those adopted to-day or to-morrow. But the principles hold good. The number required was definitely calculated by the methods of defence considered most proper. There was a certain number of positions in which defence could best be provided by cruising ships; there was a certain number of convoys, whose sailings were known, needing escorts. The normal practice of the enemy was to work his ships singly, though

small squadrons were also a favoured system on occasions. Whether, therefore, he had five ships or one at sea made no difference to the normal strength of the escort. If enemy ships should be concentrated in squadrons, squadrons would be sent after them. This was the A B C. of commerce defence, and alterations in material have not affected that A B C.

Very false deductions have been drawn from statements made by some British sea-officers of the number of ships employed in dealing with the *Emden* and other commerce destroyers in the late war.¹ It is said that if 10 or 20 (or whatever the number of cruisers may have been) were needed to deal with the ravages of a single *Emden*, it would have required 5, 10, or n times the number to deal with 5, 10, or n *Emdens*. This is one of the misconceptions which arise when mathematics are mistaken for strategy. The number of frigates and sloops required by Pellew did not vary according to whether there were 5 or 25 privateers in Port Louis, Mauritius: indeed, as one can see, he specifically pointed out that the enemy's numbers were *not* the criterion. The number needed arose from the fact that the privateers and frigates from Port Louis could simultaneously attack British trade

¹ Cf. Mr. Noel Baker in the House of Commons, Hansard, June 2, 1930, p. 1840. Taking a statement of Lord Jellicoe's that 29 cruisers were "chasing" the *Emden* at one moment, and that 70 "at one time or another took part in the chase," Mr. Baker thence argued that for the defence of trade we should require, not 70, but 300 cruisers. None of these figures afford ground for conclusions unless we know whether the vessels employed were being properly employed. As everyone who has studied the subject is now aware, the methods employed were at complete variance with every principle of trade defence which can be derived from experience.

in a great many places, widely separated in distance from each other, in the Indian Ocean. So, too, when the *Möwe* was at large in the Atlantic, the trade was put into convoy: and precisely the same number of convoys, and therefore of escorting vessels, and no more, would have been needed if there had been 10 *Möwe* at large in that wide ocean: for though it would have been within the bounds of *possibility* that they might all have concentrated, both experience of the past and conditions of propulsion of to-day justify the assumption that the improbability of their so doing would permit us to take the risk. Risks have to be taken in war: therein lies the art. It is possible, I fully admit, that the practice of Duquay-Trouin and the great Dunkirk privateers, of Willaumez, Leissègues, le Duc, Soleil, Troude, Allemand, or Périer might be followed. If it should so happen, we should act as we acted then, concentrating squadrons against those concentrations. But the practice was not general: and by far the greater part of the injury to shipping was done by single ships. To that reason there is another to be added, arising out of changed conditions. The fuel then used was the wind, and it needed no renewal. To-day, the fuel has to be frequently renewed, and is therefore either carried in the ship or in a tender. Whereas a single "raiding" vessel may be able – as they were in the late war – to supply herself from her captures, this is by no means so easy for a squadron.¹ The "300 cruiser" assumption is thus based upon

¹e.g. the difficulties experienced by Von Spee's squadron and his dependence upon supplies from neutral ports.

premisses which can find no support in experience, strategical theory, or material considerations.

SECTION II: DEFENCE AGAINST INVASION

The second affliction against which a nation requires to furnish itself with defence is that of invasion of its territory: which invasion may either be for the purpose of bringing pressure upon the people,¹ for the actual capture of territory either with a view to permanent possession,² diversionary effect,³ or the destruction of some important interest.⁴

Invasion may take place over land or sea frontiers. While it is obvious that invasion over land frontiers is, in the main, dealt with by land forces, it is not always independent of the sea. Those land Powers whose territories are not confined within one ring fence will commonly have some of their military forces, and actual or potential reserves, oversea. The reserves for an army in India lie scattered about the world, the nearest several thousand miles distant. Thus an important part of the French military forces are normally in Africa; or, if the security of that part of France which lies in Africa is considered, a part of the forces that might be needed for its defence lie in France: and it is as essential that on mobilisation her forces going either to or from France shall be able to cross

¹ Invasion of France, 1813, 1870, 1914: projected invasions of England.

² Of Canada, 1759, Cyrenaica.

³ Attacks on French coasts, 1759, 1760. Dardanelles (in its first intentions). Murmansk Expedition.

⁴ Crimean Expedition.

the sea as it is that those in one part of France shall be able to cross the Rhone.

The degree to which countries are susceptible to conquest by invasion across their sea frontiers varies very greatly. A small, highly developed, artificially constituted country, whose normal life is only maintained by a highly organised system of distribution of food and the necessities of life, will be quickly paralysed by the dislocation resulting from the occupation of its central administration and organisation. On the other hand, a larger country, not so highly organised, whose processes of life do not depend upon the punctual and accurate working of machinery of supply, distribution, and organisation, is less susceptible to the results of invasion. The seizure of no one city will paralyse the life of the country, or a sufficient part of the life to compel the submission of the whole. The German forces in East Africa, the South African forces in South Africa, were able to continue resistance long after the seaports or capital towns of either were in the possession of an enemy.

Thus, while the one country may be at the mercy of a *coup de main*, the other is not. Its resistance can be prolonged, and a prospective invader has to take account of the certainty of having to send large bodies of troops, greatly in excess of any military forces in the country, and of maintaining them over a line of sea communication for a very long time: during which not only will this line require unceasing defence, but command must also be maintained of the lines of communication by

which reinforcements can reach the enemy until submission has been enforced.

To send and maintain a large army across the sea requires shipping for its transport and, if the distance is great, the only vessels which can serve this purpose are those suitable for oceanic passages. It follows that not only must an invader possess a large amount of oceanic shipping, but he must also possess superiority at sea to furnish the necessary protection. Herein is to be noted a factor which those who advocate the immunity of belligerent shipping appear to overlook. To deprive an invader of his transport is to weaken his powers of movement; thus the capture of his shipping is a definite measure of defence. This is illustrated in a memorandum written by the British Admiralty in 1757, wherein, referring to the threat of invasion two years earlier, the Board remarked, "There never was a more dangerous crisis in this country than during the autumn of 1755. The French squadrons were returned to port, and many English ships of the line were abroad while all the enemy's were at home. Vast bodies of French troops lay on their side of the Channel; our army was very inconsiderable. . . . Our safety at this juncture was solely due to the measure which had been taken in the summer to stop all French ships and bring them into our ports. The three hundred ships and eight thousand seamen taken before Christmas, had they arrived in France, might have brought over more troops than were in this island to oppose them. . . ." If we consider the shipping needed to carry an army into Australia, the Cape,

or India, of the size necessary to conduct an effective invasion, it is obvious how great a factor this constitutes in the problem of defence against invasion.

Those countries which by force of circumstances are obliged to maintain large land forces for the security of their land frontiers are secured also against invasion by "sea" Powers¹: for the comparatively small quantities which can be brought in one echelon must be beaten in detail, even if it were possible to get possession of a port in which to land them, and to defend the transports against the various forms of flotilla attack.

From these considerations it becomes evident that invasion by sea is a negligible danger for several countries, whereas it is an acute and immediate danger for others. Those Powers whose geographical situation, internal conditions, military organisation, or size and population, either singly or collectively, render them immune from the danger of invasion, do not require, for the purpose of their security against this evil, fleets of the same strength as those who do not possess those advantages. This was patently obvious to that staunch advocate of an adequate American navy, President Roosevelt, who remarked in 1919 that, so far as invasion was concerned, America would be in no danger if she had no navy at all.

To such a scattered empire as the British,

¹ I am not speaking of what may occur through action of coalitions, when a country may be opposed simultaneously to attack from several Powers: for calculations based upon every possible contingency of coalitions can only result in a need for both sea and land forces equal to those of the strongest Powers; which, in practice, is beyond practical possibility, and would end in bankruptcy.

freedom to transport troops in security between each and all of the scattered territories is the first principle of economy in defence. So long as there is security at sea, the military forces in the island itself can be kept small: as the garrisons of the frontier posts of the Roman Empire could be kept small as long as they could depend upon reinforcement by the Legions moving along the Roman roads. The sea, let me repeat, is to the British people what the Roman roads were to Rome – the means of inter-imperial military communication. Economy in defence is to be attained by mobility. Those naval forces, without which the trade of those units cannot move in security, at the same time absolve those outer units from the burdensome need of maintaining large land forces. So long as there is an assurance of mutual help between the several parts of the Empire, none will have to depend upon its individual efforts for its security on land. The same is true of France, who, unless she could feel sure that the passage of her land forces between the metropolitan and African parts of France were secure, would, I imagine, be driven to increase those forces in order to guard herself against the danger of one or another of the main bodies of her land forces becoming isolated.

SECTION III: MAINTAINING RIGHTS AS A NEUTRAL

It has been said that the size of a navy is dictated by the needs for maintaining rights at sea when a neutral, and that in order that it should be possible to insist upon these rights a navy must be as

large as that of the greatest of the combatants. This view has been expressed very freely, as an example of which the following quotation from an able American writer will suffice. Assuming that the natural position of the United States is that of a neutral, and that she must be prepared to defend her rights by force, the writer continued that "hence it is evident why the United States desires a navy at least as large as Britain's, though otherwise we have no need of such a navy."

This clear, categorical implication that no force of less than equality with the greater of two belligerents will suffice for effective intervention is in direct opposition to the conclusions reached by no less an authority than Admiral Mahan. In his *Sea Power and . . . the War of 1812*, a book written when his judgment, cultivated by years of study, was at its ripest, he contradicts this theory. He recounts how, in the year 1794, there was a risk that the United States might be attacked, or her interests injured, by one or other of the belligerents. Gouverneur Morris then "saw and preached, that in the complicated tangle of warring interests which constitutes every contemporary situation, the influence of any single factor depends not only upon its own value, but upon that value taken in connection with other conditions. A pound is but a pound; but, when the balance is nearly equal, a pound may turn a scale." Morris urged that the United States should provide itself with twelve, or perhaps twenty, ships of the line, with frigates and smaller vessels. "I am tolerably certain," he wrote, "that while the United States of America pursue

a just and liberal conduct, with twenty sail of the line at sea, no nation on earth will dare to insult them."

Britain, at this time, could put to sea well over one hundred ships of the line. Mahan, commenting on this proposal, made the following penetrating remarks:

"The experience of the succeeding fifteen years was to give ample demonstration of the truth of Morris's prophecy; but what is interesting now to observe is that he, who certainly did not imagine twenty ships to be equal to a hundred, accurately estimated the deterrent force of such a body prepared to act upon an enemy's communications – or interests – at a great distance from the strategic centre of operations. A valuable military lesson of the war of 1812 is just this: that a comparatively small force – a few frigates and sloops – placed as the United States navy was, can exercise an influence utterly disproportionate to its own strength."¹

Appeals to authority are not argument. Impressive as the authority of the great American writer is, no one is entitled to shelter himself behind mere authority and make that his sole defence. Therefore, impertinent as it may seem for the mouse to pretend to reinforce the lion, it is each one's duty to state his own reasons for his belief. Let me, then, give mine.

To the military eye the matter appears clear and indisputable. It is merely the root idea of the familiar principle of diversions. Two Powers are supposed to be locked in a struggle, and each is

¹ Mahan, *Sea Power in its Relations to the War of 1812*, vol. i., pp. 71-74.

putting forward in full strength; neutral interests are endangered by the action of one belligerent against the economic life of the other. Such is the hypothesis.

In this situation, a neutral, feeling that its commerce is being injured by action contrary to the Law of Nations, desires redress. Unable to obtain satisfaction, it employs force, and throws a small force into the struggle, directing it against some vitally important interest of the offending belligerent, at a distance from the main theatre. Is it to be pretended for one moment that nothing less than equivalency with one belligerent will produce results? Were the Armed Neutralities, whose strength at sea was far below that of Britain in 1780 and 1800, unable to obtain any redress for their supposed injuries? Was the army under Wellington which produced the great diversion in the Spanish Peninsula between 1809 and 1812 equal to the army of Napoleon? Napoleon may have been exaggerating when, speaking of the British army, he said, "With 300 sail of transports and 50,000 men in the Downs, England can paralyse 300,000 of our troops," but he expressed an idea, then well understood, of the powers of diversionary action which directly and emphatically contradicts the assertion that nothing can be done in such a case as that visualised except by a force equal to either combatant.¹

¹ An even more familiar illustration may be thought flippant, but is none the less apt. If two men are fighting outside a public house, and the wife of one, whose strength is far less than that of either, throws herself into the battle from behind, the scale is at once thrown out of balance: her intervention is likely to be effective.

I have confined my attention to one method of obtaining redress – the use of armed force. I would, however, call attention to the fact that armed force is by no means the only remedy of which an aggrieved neutral disposes. It possesses the power of refusing to trade; and when the goods which it supplies, or the purchases which it makes, are essential to the belligerent, this weapon of embargo and non-intercourse may be as powerful as military action – it may indeed achieve directly the very end at which military action aims. It is true that those Acts of Jefferson did not produce the results he hoped for. But, little as the Britain of 1806 depended upon the American markets compared with the Britain of to-day, their results were deeply felt in the industrial districts, and it was the results of those Acts that caused Spencer Perceval to propose to amend the British Orders in Council, which in turn led to the repeal of the embargo in March 1809.

We need not, however, go back a hundred years. We have only to turn our eyes to the war of fifteen years ago, and to recollect the power possessed even by the weaker neutrals of making their wishes felt by the use of economic action; while the dependence of the Entente for their supplies of oil, petrol, and food – to mention three only out of a host of imports without which they could not fight – is within the recollection of every one. M. Clemenceau's almost impassioned demand that nothing should prevent the uninterrupted flow of petrol into Europe, upon which the whole of the military campaign of 1918 would depend,

furnishes a vivid instance of the power possessed by a neutral who commands supplies of essential war material, whether it has a navy or not. The striking resemblance with the power possessed in former times by the Baltic neutrals, who commanded the supplies of analogous materials – hemp, flax, masts, and spars – will be recognised by all who have a knowledge of past wars. Writing in 1917, after the United States had come into the war, M. Clemenceau said:

“At the decisive moment of the war, when the year 1918 will see military operations begun on the French front, the French army must not be exposed for a single moment to a scarcity of the petrol necessary for its motor lorries, aeroplanes, and the transport of its artillery. *A failure in the supply of petrol would cause the immediate paralysis of our armies, and might compel us to a peace unfavourable to our Allies.*”¹

For these reasons – which it is obvious are capable of almost infinite expansion by illustration – the present writer holds that in considering this great question of the size of navies the statesmen of the world will do well, in considering the basis of necessary strength, to confine their attention, as statesmen have hitherto done, to the needs of defence. If they have force enough to secure themselves from invasion, to make those military movements essential for their security, and to give such defence to their sea-borne

¹ The late Sir Edmond Slade informed me that the immediate cause of the writing of this letter was that the American tankers were at that time being employed in the Pacific.

commerce as geographical circumstances render possible, they can with confidence feel that they will be in a position to insist upon observance of the laws of nations.

SECTION IV: PRESTIGE

There is, however, yet another factor put forward for the determination of naval strength. It was referred to by Sir Edward Grey in his speech on July 25, 1912.

"Surely," said the Foreign Secretary, "when you are thinking of the causes for the building of the German fleet it is not leading to a just conclusion to overlook one very possible and obvious cause, which is that a great and growing nation generates power, not necessarily for aggression, and with no special design, but *because it wishes to be powerful*."¹

The German Ambassador asserts that this idea originated from himself. "The notion," he says, "is a truism, but it appears to have impressed the Minister." But is it the truism that Von Marschall assumed? Only upon one condition can it be so accepted – a frank declaration that the nations of the world do not arm themselves for their defence, but for some other reason: that it is not their security alone that they have in view. If a manifestation of power be the desire, one wonders by what criterion they measure their needs, by what means they propose to weigh that which is imponderable. If we accept the repeated assertions (closing our

¹ German Diplomatic Documents, vol. iv., p. 140.

eyes to many symptoms) of the German rulers of 1911 and onwards that no aggressive intentions informed their naval policy, the believers in power and prestige as proper factors in the determination of strength may well consider whither those Jack o' Lanterns led the German people.

Experience, that hard, unsentimental, passionless, and unbiased teacher, shows clearly that the result of increases in armament of one Power, which have no reasonable interpretation in any danger to which that Power appears to be exposed, is to induce similar or greater increases elsewhere. At the risk of prolixity in reiteration of self-evident facts, let me recall in illustration the statements of policy made by responsible men in 1912. Many, very many, could be made, but two only will suffice.

"He [Lord Haldane] had pointed out that the British Naval programme had to be determined in proportion to those of other Powers."¹

"In Edward Grey's presence, Mr. Churchill described any departure from the Naval Law as 'heaping Pelion on Ossa.' The naval programme embracing several years, which is to be introduced in the House of Commons to-morrow, is *based automatically upon ours. If we increase, they increase here. If we reduce, they reduce here to match.*"²

Prestige has never formed the foundation of the strength of the armaments of any nation of the past with whose naval history we are acquainted. It

¹ Count Von Metternich to Bethmann Hollweg, March 1, 1912. German Diplomatic Documents, vol. iv., p. 80.

² Metternich to the German Foreign Office, March 17, 1912. German Diplomatic Documents, vol. iv., p. 86.

was not for prestige that Colbert developed that fine fleet of France, but to protect oversea commerce and oversea empire. It was not for prestige that Spain, crippled and poor, spent her exiguous revenues upon a fleet that ate up the greater part of them.¹ Nor was it the mere glamour of prestige which impelled those thrifty and eminently practical people, the Dutch, to spend their millions on men-of-war and director's ships.

On the other hand, if we take at their face value the assertions of the rulers of Germany of 1911 and onwards that no aggressive intention informed the construction of their fleet, and, agreeing with Von Marschall, attribute that growth to her "wishing to be powerful" – or "prestige" – we can see whither this led her, and the world. So, too, according to Prince Bülow, we can follow the noxious trail in the case of Austria. "For Austria's sake, *to save Austrian prestige*, they [Bethmann and Jagow] persistently refused all the English proposals for a conference, and so saddled themselves and us with the appearance of being averse from any peaceful settlement."²

Besides producing these external effects, it would seem that, in another form, prestige played its part in the increase of the German navy. On

¹ "Cette flotte était nécessaire aux Espagnols; tirant toutes leurs ressources des Colonies, ils avaient à en défendre les côtes contre l'ennemi pendant la guerre, et à en protéger pendant la paix le commerce envahi par la contrebande des Anglais et des Hollandais. . . . Mais cette marine de guerre qui assurait ainsi le revenu de l'Etat, en absorbait la meilleure part" (Sorel, *L'Europe et la Révolution Française*, i. 370).

² Cf., in a similar way: "The danger of a world war arose when Serbia was treated in a way that compelled Russia to intervene *to defend her own prestige* . . ." (Brandenburg, *From Bismarck to the World War*, p. 487).

June 16, 1914, we find Bethmann Hollweg writing to Lichnowsky in the following terms: "Whereas up to now it was only the most extreme pan-Germans and militarists in Germany who insisted that Russia was deliberately scheming to attack us, now calmer politicians as well are beginning to incline to that opinion. The first result is the demand for repeated, immediate, and comprehensive strengthening of the army. This, as things are with us now, *has produced competition also in the navy, which refuses to go short when anything is done for the army.* Since His Majesty has now identified himself with this school of thought, I fear that the summer and autumn will see a fresh outburst of the armaments fever in Germany."¹

But it is surely unnecessary to continue to labour so obvious a point. The tale is too long, too familiar, the answer too plain. One thing, however, remains to be said. So soon as other nations begin to believe that the naval forces of a certain Power are excessive for the needs of that Power's security, so soon will suspicion and its attendant sprite, ill-will, poke up its unprepossessing – and expensive – head. In support of this, without pretending to associate myself with the opinion expressed, I may be permitted to quote a recent French writer on the Franco-Italian naval problem. "In forcing the naval question to the foreground of the political question, and the question of parity to the foreground of the naval question, *Italy is subordinating everything to a satisfaction of prestige,* leaving no room for compromising on realities. We are

¹ German Diplomatic Documents, p. 370.

confined willy-nilly to the domain of sentiment and passion.”¹ If this have in it any truth – I repeat that I do not express any opinion as to the view expressed – is not “prestige” a poisoning influence? Are we to be refused permission to enter the domain of realities and kept out in the wilderness of sentiment – a wilderness which becomes extremely costly to live in?

The strength of one navy at once affects the strength of others. If one, in its desire to exhibit in some material form its “greatness,” irrespective of whether it is threatened with danger from any cause or quarter if it does not possess force in that particular form, increases its fighting forces, so do others. As Metternich reminded his masters, “If we increase, they increase here. If we reduce, they reduce here to match.” It is assuredly idle to assert that a navy, increasing beyond the obvious needs of the security of the territories and interests of its nationals, is not being developed with an intention of aggression – and that no design upon other nations informs the national policy. The fact may be perfectly true. But the other nations can hardly fail to ask, “If a difference should arise – a boundary dispute, a matter of trade or immigration – is it not possible, or even probable, that this power-made-manifest which they possess will be put to the use against us for which it is capable?”²

¹ M. Louis Aubert in *Foreign Affairs*, January 1931.

² “I dread being too much dreaded. It is ridiculous to say we are not men, and that as men we shall never wish to aggrandise ourselves in some way or other. . . . We may say we shall not abuse this astonishing or hitherto unheard-of power. But every nation will think we shall abuse it. It is impossible but that sooner or later this state of things must produce a combination against us which may end in our ruin” (Burke on the Policy of the Allies, October 1793).

Ministries, too, may not always have the last word. The passion of the people may drive the most pacifically and judicially minded from arbitration to war. Walpole wanted peace in 1739, Fleury in 1741, and Aberdeen in 1854: and they are not the only Ministers who have had to give way to *force majeure* in some form.

As prestige is neither a proper, nor a moral, reason for increase of armaments, it can find no place whatever in a scientific examination of the elements of the problem of disarmament. I do not pretend that the human and psychological element is one that can be wholly dismissed; but I do most firmly assert that when the human element expresses itself in terms of sentimentality, to whichever pole, increase of armament or abolition of armament, it gravitates, the cause of reduction of armament is harmed.

Finally, is there not something rather contemptible in this cry of prestige, this cry that armaments and dignity are as inseparable as the Siamese twins? That prestige is of practical importance in some quarters is not denied: a cruiser with five funnels will impress some Far-Eastern minds more deeply than will one with two only. But we are thinking of the great peoples of the world whose political thought has carried them beyond the phase of "saving-face" and outward appearances.

As it was the obsession of prestige that led Louis XIV to his pursuit of the continental policy which so deeply injured France and prevented her from becoming the great colonial power of the world, so the same malign influence was not,

it should seem, absent from the causes of the struggle that broke up the first British Empire. The "prestige" of the British Parliament must be upheld. To admit error was impossible. I cannot help thinking that in Burke's words on this subject we find an adequate peroration:—

"They tell you, sir, that your dignity is tied to it. I know not how it happens, but this dignity of yours is a terrible encumbrance to you: for it has of late been ever at war with your interest, your equity, and every idea of your policy. Show the thing you contend for to be reason; show it to be common sense; show it to be the means of attaining some useful end; and then I am content to allow it what dignity you please. But what dignity is derived from the perseverance in absurdity is more than I ever could discern."¹

Is it not, then, plain that since its influence has always been harmful we should most resolutely refuse to admit prestige as one of the elements dictating the strength of naval armaments?

¹ Burke's speech on American taxation (*Works of the Rt. Hon. Edmund Burke*, vol. iii., ed. 1852, p. 185).

CHAPTER II

THE SIZE OF SHIPS

FROM the quantitative question of the size of navies I pass to the separate, the quite distinct, question of the size of fighting ships. It is here that great economies are undoubtedly obtainable. The question has been rendered unnecessarily obscure by the use of phrases, by definitions which possess no sanction in experience,¹ and by assumptions of a purely *a priori* character.

The fundamental question to which a clear and unequivocal answer is needed is, "What dictates the size of a fighting ship?" It is not a question of a "capital" ship, or of a "cruiser," for both "capital" ship and "cruiser" are merely types of *fighting ships*.

The question provokes another question: "What is the fighting ship required to do?" Merely to say that her function is to overcome the fighting ship of an enemy is no answer, for it carries us no further than that she must be, approximately, as large as that opponent (assuming, as in broad terms we may, that strength and size go together), since that merely leaves us where we were: for by what is the size of the enemy's ship similarly determined?

A ship is a unit of a navy. The functions of a

¹ e.g. "The size of a 'capital' ship is governed by the power to resist attack from all weapons, by air, on the surface, and under the surface." Who said, "We ought to have our ideas beyond mere defensive measures"? Nelson.

navy have already been discussed¹; and have been shown to be, on the one hand, to prevent enemy troops or enemy supplies, which will assist either the people or their fighting forces to resist, from crossing the sea, while enabling its own forces or supplies to cross the sea in security.

Troops and supplies are carried in ships normally built for the carriage of passengers and goods; that is to say, merchant ships. Thus the ultimate object of all naval operations is, on the one or the other side, to stop the movement by water of ships built for the purpose of carrying goods or passengers – that is, merchant ships. Does this theory stand the test of experience, the only test of any value?

The processes of war at sea divide themselves into two parts; an attempt to overcome the resistance of the enemy's fighting ships – that is, to *obtain* command; and an attempt to prevent the movement of goods or troops – that is, to *exercise* command.

Provided the fighting ships have sufficient endurance to go where they are required to go, the size of the ships constituting the forces contending to obtain command is purely relative. Take, for example, the Lake campaign in the war of 1812. The command of Lake Erie was, for the forces of the United States, an essential preliminary to the recapture of Detroit and the invasion of Canada. Command of the Lakes was the first object of the campaign. The largest vessels which took part in the campaign were no larger than

¹ *Vide* p. 50 *et seq.*

sloops of war – vessels of about 500 tons armed with 20 guns, whose modern representatives might be craft of the destroyer type, or even smaller. It was with a squadron composed of a few of these, and several armed schooners, that Captain Oliver Perry won his decisive victory on Lake Erie which gave the American forces the command of the Lakes – a command, as the Duke of Wellington said later, in 1814 – which was “an essential preliminary to offensive operations.”

But, it may be asked, how can we compare a campaign on the Lakes to campaigns elsewhere, diminutive sheet of water that it is compared with those on which the fate of an empire may rest? Is it so small? Lake Erie is some 250 miles long. This is not much less than the length of the English Channel, which is 280 miles from the Lizard to Dungeness. Command of the Channel would decide the fate of England.

The victory won in the battle of Lake Erie between vessels of that small size was as decisive as those fought by the 2,000 ton ships at the Nile, the 14,000 ton ships at Tsushima, or the 150 ton galleys of Don John of Austria at Lepanto, and more decisive by far than the battle fought between ships of over 24,000 tons at Jutland. Nor is there any doubt that if we should suppose a war in the Baltic to-day between, let us say, Poland and Finland, the object of any operation which might have to be undertaken at sea could be obtained by fleets of which the largest units were torpedo-boat destroyers of 1,000 tons. Fleets composed of such vessels could fight a

decisive action; a decisive action would give command at sea; and, when that command was obtained, such military or economic action as it was decided to undertake could be undertaken.

But we need not confine our speculations to wars-which-might-be, for we have the evidence of wars-that-have-been to form our opinions as to the factor of size in relation to strategy and tactics. To what end were those operations at sea directed which began with a torpedo attack upon a Russian squadron off Port Arthur in February 1904 and ended with the annihilation of a Russian fleet in the Tsushima Straits in May 1905?

Command at sea was required by Japan in order that her army might be able to be moved into, and maintained in, the Korean and Manchurian theatre, in sufficient strength to defeat the Russian army. It was required by Russia in order to prevent the despatch of that army, and, ultimately, to transport a Russian army into Japan to force the acceptance of the Russian-Manchurian-and-Korean policy upon the Japanese people. The first need for each Power was to render the enemy fighting forces incapable of action: which might be achieved either by destroying his ships or his belief that he could do anything with them. Provided the fighting ships of each Power were of sufficient size to operate in the manner strategy demanded within that confined theatre, the longest sea passage in which is less than 1,000 miles, they would be capable of meeting and fighting the enemy. In the war with China, Japan, operating in the same waters,

obtained the command at sea required for the passage of her armies. Her "ships of the line" in her decisive victory at the Yalu were of many sizes: none was larger than 4,300 tons; some were as small as 2,400 and even 2,000 tons.¹ In 1894, with these "capital" ships, Japan obtained command of the sea by fighting. If neither Russia nor Japan had had any larger vessels in 1904, command of the sea would have been won by whichever Power directed its strategy, conducted its operations, and handled its instruments—the squadron, the flotilla, the ship, and the gun—with the greater skill. The theatre of war was but little larger, and the Japanese ships of 1894 were capable of operating in any part of it—indeed, some of those same ships which fought at the Yalu took part in all the operations of the war with Russia, their endurance being sufficient to go wherever they were needed. They were no longer "capital" ships; but why? Not because some changes in the nature of war had occurred which rendered it essential that ships which fought in "battles" must be larger than they had been ten years earlier, for no such changes had taken place, but because the Russian ships were larger than the Chinese.

Finally, to bring the record up to date, we have the campaign in the Caspian Sea in 1918-1919. The Caspian is a great sheet of water across which certain important communications pass: those between Baku and the Volga, carrying oil, the

¹ The largest were the three vessels *Matsushima*, *Itsukushima*, and *Hashidate*, of 17½ knots, mounting one 12.6" gun and twelve 4.7". The *Hiei*, which fought "in the line," was of 2,000 tons.

essential fuel for many parts of Russia, and those between Russia and Turkestan. It is no small piece of water; it is 700 miles long by 150 across at its narrowest part, or between three and four times the size of the Adriatic.

In the summer of 1918 a naval campaign began in that sea. What was its object? To prevent the transport of Russian troops across the sea and to interrupt those essential enemy communications – precisely the object, it will be observed, of all warlike operations at sea from China to the Caribbean, from the days of Athens to 1918.

What were the ships, what were their armaments and their speed, which took part in this naval campaign? The British squadron of fighting ships consisted of 13 ships, all but one oil-tankers, of an average size of 1,560 tons gross: the flagship¹ was of 2,172 tons; her armament was five 4" guns. The British "Super-Dreadnought" was the motor-ship *E. Nobel*, of 3,779 tons,² a mighty vessel armed with three 6" guns. There were two aircraft carriers of about 1,600 tons, carrying four motor-boats. All the ships were old and out of repair; their speed was 10–11 knots, which sometimes dropped to 4 knots, sometimes they stopped altogether.

And the Russian squadron? It consisted, at the beginning, of some 20 ships of about 750 tons, with a flagship of 3,000 tons. All of these were armed tankers, with armaments of 4" and 6" guns,

¹ The *President Kruger*. Other typical ships were the *Ventur*, 1,275 tons, three or four 4" guns; the *Slava*, 1,690 tons, one 6", one 4" guns; the *Dublin Castle*, 1,582 tons, two 6" guns.

² Not included in the above average.

more modern and of greater range than those in the British ships, and of about 8 to 10 knots speed.

These, then, were the "battleships" or "capital" ships. These ships fought a "battle" off Alexandrosky on May 21, 1919, in which a part of the Russian fleet was destroyed. Command of the sea – control – the object of the operations, was attained as the result of that battle between those two fleets. It is an exact parallel to the Lake Erie campaign, and it conveys exactly the same lesson – size is a purely relative matter. And it conveys another. At a later stage the Russians brought eight to ten destroyers into the Caspian – vessels far more powerful than the weak British battleships; but for want of spirit they did nothing, and the British Commodore destroyed their fuel ships¹ and so rendered them useless. It is the commander who wins victories.

Thus there can be no shadow of doubt that the size of the fighting ship, in the struggle to obtain command, is purely a relative matter. The "capital" ship is merely the most powerful ship – she is not even necessarily the largest. The cruisers of the *Drake* class were larger than several contemporary battleships. Provided she is of approximately the same strength as her opponent, what the size is does not matter, so long as it is sufficient to enable her to go where she is needed to go and operate in that region, in the manner, and for the period, necessary for conducting the strategy by which command is to be obtained.

¹ They were coal-burners, and coal was not obtainable in the Caspian, where all the fuel is oil.

Thus, if we seek for a criterion of size in the aspect of operations concerned with obtaining command, we can find none except endurance. There is nothing to show whether a vessel must be of 6,000, 10,000, 15,000, or 35,000 tons; for both the 6,000 and 35,000 ton ship could go anywhere in the world, and the 6,000 ton ship can fight her 6,000 ton opponent as decisively as the 35,000 ton ship can fight hers¹; and either of these is a complete match for any merchant vessel that could be improvised into a man-of-war.² We still lack, in fact, a fixed criterion, and this we are bound to lack so long as our question remains in the terms, "How large must a ship be to fight another ship?" for the answer can only be, "Large enough to go where she can find her, and, when she gets there, strong enough to fight her." The long tale of experience, from which the preceding examples have been taken, confirms beyond a shadow of doubt that size is a purely relative matter, to be determined initially by function.³

Is there, then, a fixed point to which we can

¹ The *Emden* and *Königsberg* were vessels of about 3,400 tons, the *Dresden* of 3,600. These operated in the China seas and Pacific though they had no bases.

² This is discussed later; *vide* p. 189.

³ This is not a new discovery, as the following somewhat sarcastic extract from a paper, dated August 25, 1855, indicates: "The circumstance that the Admiralty persists in building vessels like the *Marlborough*, of a size enormously disproportionate to the requirements of service, suggests the idea that my Lords who constitute that Board must be a set of old Pantaloons whose notions of magnitude in reference to utility are derived from Pantomimes in which exhibitions a teaspoon becomes as large as a shovel and a watch acquires the dimensions of a frying-pan. One would expect them to carry out the propensity to physical exaggeration in their domestic arrangements, eating their dinners with knives bigger than broadswords, and forks only a little shorter in the handle than garden prongs: writing letters with pens as long and as thick as walking-sticks, and tying up despatches covering more than flagstones with red tape broader than the hand."

relate the size, or must we content ourselves with mere guesses? Guessing is an expensive process. How greatly the authorities to whom appeal is made differ in their guesses we have already seen – 50,000, 35,000, 25,000, 23,000, 20,000, 15,000, 10,000, 6,500 tons. When we consider that a fighting ship costs at present between £190 and £320 per ton¹ – and may, if, as is not unlikely, the example of Germany is followed in construction, cost anything up to £400 a ton – we can come to no other conclusion than that this guesswork is too costly to be continued. If those authorities are right who maintain that ships smaller than those of the recent Conference decisions cannot perform the functions for which they are built, our “battleships” cannot cost us less than £8 millions apiece, and our cruisers less than £2 millions; and may – with the “improvements” the technicians will insist upon – cost us double that sum. If those at the other end of the scale of opinion are right, neither our battleships nor our cruisers (I use the word “our,” not in the sense of the British, but of all peoples) need cost us more than £1¼ millions, or (allowing again for the demands for most costly forms of construction), at the very outside, £2½ millions. There is a wealth of difference between the cost of the larger elements of the post-London-Conference British and American fleets, as arranged, and that of a fleet

	tons	cost	cost per ton
¹ e.g. <i>Shikari</i> (destroyer)	905	£292,315	£320
<i>Witch</i> ”	1,100	£316,685	£287
<i>Frobisher</i> (cruiser)	9,860	£2,044,597	£208
<i>Rodney</i> (battleship)	33,500 (?)	£6,414,653	£191

composed of fifteen vessels whose size, based upon the principle of function, and embodying the conclusions which experience has to offer, might be as low as 6,000 tons.¹ Taking the cost per ton for each ship as £200, the cost of the one battle fleet is about £105 millions, or the other, £18 millions.² Even the evil habit that has developed in all countries of recent years in thinking of millions of pounds as we thought, a generation ago, in scores, cannot surely blind people to what I will call, at the mildest, the "desirability" of making an attempt to examine this subject with some pretence to scientific method.

I have said that, provided ships can go where they have to go, no absolute size can be affirmed to be necessary for obtaining command. From Lepanto to Lake Erie in 1813, and Lake Erie to the Yellow Sea in 1914, the Channel and the Mediterranean in 1914-1918, the lesson is the same. If, on the other hand, we look to the ultimate function of navies, and therefore of the ships of which they are composed, which is the *exercise* of command, we have something definite, fixed, and ascertainable.

The exercise of command resolves itself in its final analysis into the arrest of merchant ships.³

¹ That is to say, larger than the cruisers of the *Sydney* class which operated in all parts of the world from the Pacific to the Mediterranean and North Sea, and nowhere proved too small for their work.

² That is, capital cost of 15 ships of the two sizes. The upkeep costs have also to be considered. The greater ship costs (about) £450,000 a year for maintenance. The lesser would cost, I imagine, about one quarter of that sum - a difference annually, if all were in commission, of £5 millions. This does not exhaust the saving.

³ *Vide ante*, p. 90.

What qualities must a fighting ship possess which will enable her to enforce the surrender of a merchant ship?

There are three factors in this problem – armament, speed, and sea-going and sea-keeping capacity, which last, for short, can be called “endurance.”

SECTION I: ARMAMENT

First, as to armament. With what armament can a merchant ship be provided?

The largest gun with which merchant ships can normally be armed is the weapon of 6" calibre. Although it is not impossible for heavier guns to be mounted – the *Wolf* in the late war, as I have remarked earlier, was armed with a 7.6" gun – such ships must be exceptions, and the number of such guns that could be mounted are few. Even, however, if a Power should put herself to the cost of fitting out some such ships, they would be too few to affect the course of a war. Whether they would be dangers I will deal with later.

Taking, then, the 6" gun as the practicable limit, with how many such guns can a merchant ship be armed? In the late war the armaments of merchant ships employed as “auxiliary cruisers” consisted, I think, of not more than eight guns, all of which could not be fought on one broadside. We should not be taking any serious risk if we assumed that the reasonably probable maximum broadside fire of an armed merchant ship were six 6" guns.¹

¹ Which is more than any armed ship possessed in the late war.

It has been said that only upon a very limited number of times in the history of war has a force been beaten by an adversary of half its strength – a statement confined, of course, to battles in which each force was armed with weapons in the same stage of development¹: from which the deduction was made that the aim of a commander in strategy and tactics, merely in order to ensure not being beaten, should be to endeavour to meet his enemy with double his strength. With what armament could a fighting ship – a vessel built specifically for fighting – feel that she was twice as “strong” as a merchant ship opponent whose broadside consisted of six 6” guns?

The man-of-war possesses certain intrinsic advantages. First, she is a far smaller target,² even if she were of the same actual tonnage. Her machinery is less exposed. She is less liable to be set on fire, and, if a fire should break out, her appliances for extinguishing it are better. She has proper appliances for the control of her gunnery. She can be provided with some measure of protection. The duel between the *Carmania* and *Cap Trafalgar* – each an armed merchant ship – furnishes an example of the unavoidable risk of fire. These ships, attacking each other with a few 4” and 4.7” guns, were both set on fire within a short time, after a very small number of hits, the victorious *Carmania* herself blazing with such fury that she was unable even to offer help to her

¹ That is to say, it does not take account of combats between troops armed with machine-guns and savages – conditions which cannot occur in warfare between maritime Powers.

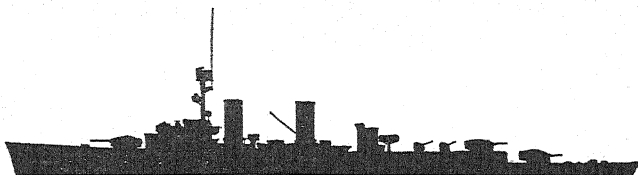
² Compare the silhouettes for confirmation.



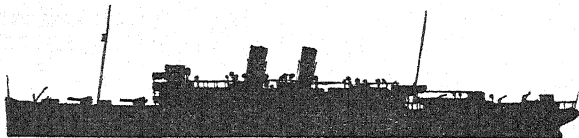
MAURETANIA



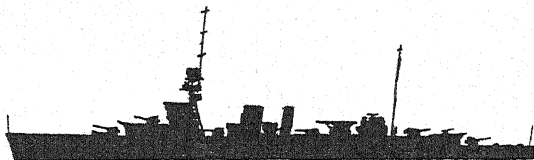
ENTERPRISE (7,580 tons)



KÖLN (6,000 tons)



MOREA (armed ship)



DRAGON (4,850 tons)

sinking enemy. How should one assess these constructional advantages? Irrespective of any question of advantages which speed might offer, would it be improper to say that, given merely *equal* armaments, the man-of-war was of double the fighting value of an armed merchant ship opponent? Or, to put it in familiar terms, what odds would one care to lay on the outcome of an engagement between two such ships? I suggest that the shortest odds you would get in any ward-room of any ship in any navy would be two to one, and that many an officer would be prepared to lay three or four to one.

Still, accidents occur. Even the largest ship may be put out of action by a single lucky shot, as the *Lion*, for all her 26,000 tons, was disabled by one shot at the Dogger Bank. There may be those – among whom I am not one – who would think the margin too narrow. Let us, then, suppose that the man-of-war is provided with an armament 150 per cent. of the strength of the merchantman – nine guns to the latter's six – and that we assess all her advantages¹ of construction and adaptation no higher than 50 per cent. I venture to say, with considerable confidence, that if an attempt to insure both ships were made, the rate per cent. upon the merchant ship would be placed very much higher than that upon the man-of-war.

The conclusion as to the armament of a man-of-war to which this brings us is this: that the maximum necessary for the performance of her ultimate

¹ I have purposely omitted "training" in order not to overestimate the man-of-war's advantage, as it is within the bounds of possibility that, armed with trained men, the crew of the armed ships might attain an efficiency equal to that of the man-of-war.

functions need not be higher than nine guns of 6" calibre. This gives her such a superiority over any armed merchantman that the issue of a combat could not be in doubt. This is not intended to imply that no other armament, of heavier or lighter guns, might not be substituted: but that if weight is allowed sufficient to admit of that armament, the ship will be capable of doing that for which she is built. Some who hold the view that the greater hitting power of a 7.5" or an 8" gun makes that weapon preferable could substitute whatever number of those guns the weight would permit. The comparison has been made in terms of 6" guns for the mere reason that it is more accurate to compare like with like.

SECTION II: SPEED

We come next to the question of speed. Referring again to our criterion, the merchant ship, what speed is necessary in a fighting ship to render her capable of arresting the merchant ship? Obviously, this depends in the first place upon the speed of merchant ships.

At the time of the war "only one-sixth of the steamers under the British flag could maintain a speed of even 12 knots in war, and many of these were small, short-distance, passenger vessels."¹ Of vessels of higher speeds, only 11 per cent. of the total tonnage of the British merchant fleet in 1927 had a speed of 15 knots and over; and of these there appear to be, at the present moment, only 34 vessels in the world, of which 25 are British,

¹ Fayle, *Sea-borne Trade*, vol. i., p. 21n., quoting Cmd. 9092, p. 140.

with a speed of 21 knots and over. Assuming, as it seems proper to assume, and as one of the following tables appears to imply, that the merchant navies of the world are not, as a whole, composed of faster ships than those of this country, we come to the conclusion that about 88 per cent. of the bulk of the commerce of the world is conducted in ships of 15 knots and under. It is this shipping which is important in war. It is by its means that nations preserve those external communications which, as the previous remarks have shown, are an objective in war; it is those ships which supply the greater part of the tonnage for oversea invasions which it is the function of a navy to prevent. The very fast ships contribute no more than 1.5 per cent. of the whole tonnage.

TABLE I¹

Country	Speed in Knots					Total
	25	24	23	22	21	
U.S.A. . .	—	1	1	—	3	5
France . .	—	1	2	1	1	5
Italy . .	—	—	—	—	3	3
Germany .	2	—	—	—	2	4
Japan . .	—	—	—	—	—	—
British Empire .	6	1	6	—	12	25

TABLE II

Speeds	Gross Tonnage	
	Great Britain	Foreign
20 knots and over . . .	484,672	421,312
15 to 20 knots . . .	1,973,759	1,668,495
12 to 15 knots . . .	6,466,508	5,925,840
Under 12 knots . . .	12,953,030	30,938,993
	21,877,969	38,954,640

¹ The figures relate to ships in service in 1930. Others are in contemplation in certain countries, but the significance of the table is not affected by the addition of these few vessels.

Very little military importance attaches to the few ships of 20 knots and over. They are not cargo carriers, and, if they were, the extent to which they, in their small numbers, could contribute to the maintenance of the life of a nation is negligible. War is not a matter of stopping one or two ships. No blockade in the history of war has been complete. There never has been a time when some adventurous vessels could not get through a blockade. But these escapes or evasions do not affect the ultimate result, nor do they invalidate a blockade, as the escape of many blockade-runners in the American War of Secession showed. When, for instance, in 1861, Lord Lyons was asked by Lord John Russell whether he considered the blockade effective, he replied that he was puzzled to answer. "I suppose," he wrote, "the ships which run it successfully are more numerous than those which are intercepted. On the other hand, it is very far from being a paper blockade — a great many vessels are captured; it is a most serious interruption to trade."¹ Does any practical ship-owner or seaman imagine valuable ships like those of over 20 knots being employed on this hazardous business of blockade-running?

What speed, therefore, is necessary in a man-of-war in order that, as an instrument of a navy, she shall be able to exercise control over communications? With some confidence it may be asserted that any navy whose ships were sufficiently fast to offer a reasonable chance of bringing to over 98 per cent. of the shipping of an adversary would be

¹ Bemis, *American Secretaries of State*, vol. vii., p. 64.

amply provided for. One might even go further and say that the power to arrest 88 per cent. of the shipping would place it in a dominating position – few blockades, I repeat, have been so effective that 12 per cent. of those who endeavour to get through them fail to do so: and that 12 per cent. is not a percentage of *the whole mercantile marine*, but a percentage of *that small percentage* which makes the attempt. A blockade, let it be borne in mind, is impracticable until or unless the enemy fighting forces are defeated, either physically or morally: that is to say, so weakened by physical force, or so dispirited by defeat, or what is regarded as prospective defeat, that they will not venture to sea. If that situation is reached, but not until it is reached, merchant shipping ceases to ply. This is not mere theory. It is the plain reading from a mass of facts.

In these conditions, wherein lies the justification for a demand for such speeds as we now see in the cruisers of the world – speeds of 32, nay, 34 and even 40 knots? Wherein, in this aspect of the question of speed,¹ are such speeds necessary? If it be correct to say, as I hold it to be correct, that the stoppage of some 85 to 90 per cent. of an enemy's external communication is as much as ever has been attained in war, and is – so far as economic considerations alone are concerned – decisive, and that approximately 90 per cent. of the world's shipping is composed of vessels of no more than 15 knots, why is the taxpayer to be

¹ There is another aspect – the tactical aspect. To that I shall refer later; *vide* p. 110.

burdened with the cost of engining his ships of war to give them more than double this speed? Without the smallest hesitation, I say that it is totally unnecessary. What is more, in so far as the recent war can furnish its contribution to our opinions, it is to be observed that the speed of the cruisers thus employed did not exceed 25 knots: and that there is the practical evidence of experience all over the world that this proved sufficient both for ourselves and for our enemy. I can discover nothing in the whole record of the war to show that the course of events would have been altered if the cruisers had been of a higher speed.

Undoubtedly special cases can be imagined in which a 25 knot vessel would fail to overhaul even a slower ship; she is sighted at dusk, in thick weather, or close to neutral waters, and so she escapes: or one of the few "ocean greyhounds" runs a course and cannot be overhauled. But war, like other affairs of life, does not consist in a number of special cases; and those who design national armaments to provide for each and every special case they can foresee will not only lead their countries into bankruptcy, but will still fail to provide for all the unexpected special cases which will arise. This is a very old lesson which materially-minded men are prone to forget. It furnishes an example of the saying of the head of a great firm of my acquaintance that his life has been spent in preventing his technical "experts" from ruining him.

There are, again, those who fear that the great 25 or 30 knot ships constitute a danger as commerce

destroyers. Without denying the possibility that nations might think it worth while to risk these vast, valuable, and vulnerable vessels on the hazardous enterprise of sporadic warfare, the chances that they might do so, and the prospects of success such attempts would have, are worthy of consideration. Without for the moment saying that we can draw final and complete conclusions from the limited experience of the late war, what evidence can it furnish? Did we see the enemy sending out his fastest or largest vessels as raiders? What were the characteristics of those raiders which cost us appreciable losses of tonnage?

The most effective – I might without exaggeration say the only effective – armed vessels employed as commerce raiders were the *Möwe*, of 4,500 tons and 14½ knots speed, and the *Wolf*, of 5,809 tons and 10 knots speed. Had the Germans, then, no larger or no faster ships? They had many. On the outbreak of war, 54 ships lay in American ports, among them one of 24 knots, two of 23.5, one of 19, and many of over the 14.5 knots of the *Möwe*; and there were no less than 30 good ships in Lisbon. Yet none of these proceeded to sea. The Allies had no 30 or 34 knot ships to put fear into them; and, in the later stages of the war, that cruiser squadron whose specific function was the direct interception of merchant vessels – armed or otherwise – consisted of ships of from 12 to 16 knots at the most. We did, it is true, towards the end of the war, design those larger, faster ships, the *Hawkins* class, of over 30 knots, armed with 7.5" guns. They played no part in the war, nor has

anyone ever been able to show that any situation arose that held any possibility, or probability, of a need for such ships. They were not completed until after the war; and there is good reason to suppose that the present obsession for the 10,000 ton, 8" gun cruiser arises solely from the fact that these vessels existed in 1921 and the Admiralty were loth to get rid of them.

There are those who, notwithstanding both reason and experience, fear that an enemy might send out his vast 25 and 30 knot ships as raiders, and that therefore it behoves the fighting seaman to demand large, fast ships to deal with them. If commerce raiders are at sea, and are causing sufficient loss to justify the clogging of commerce which convoy imposes, convoy would be resorted to, as it has been before. Of what value is the 25 knots speed of the raider unless she is strong enough to overcome the escorting vessel? Its sole value lies in enabling her to run away successfully. As a fighting ship, with whatever armament our prospective armed *Mauretania* is provided, she would have no chance whatever against the regular fighting ship. Wars are not won by escaping from the enemy, and convoys are not taken by running away.

I venture, therefore, to say that there is no necessity whatever for provision to be made for a speed of over 25 knots in the fighting ship, in relation to her ultimate function.¹

¹ I estimated the speed necessary as 28 knots when I first considered this question. Further thought compels me to say that I find it impossible to discover, either in recent experience or theoretical inductions, any reasoned arguments with which, under cross-examination, I could support a demand for over 25 knots.

There is, however, another aspect of speed – the tactical. There are those who make their demand for this addition to the size and cost of the cruiser on the basis of tactical needs. The torpedo craft of to-day is a vessel possessing tactical value: and that value she derives from a high speed by means of which she, a weak vessel, makes her approach in so short a time that effective hitting may not be possible before she has discharged her weapon. The argument of one school of tactical thought is that the defence of the largest fighting ships must be confided to “cruisers” – large vessels possessing armaments heavy in comparison with destroyers; and, in order that these vessels shall be able to ward off an attack, they must be capable of those high speeds which to-day are the rule.

This theory finds no support whatever in the experience of the war. Nay, more; it is in direct contradiction of experience. It tends to perpetuate a doctrine which went far towards rendering the battle of Jutland indecisive. The design of British destroyers was the outcome of a defensive theory which proved utterly incorrect when subjected to the test of practice.

The theory ran thus. The battle will be won with the gun. The British fleet possesses a superiority in heavy artillery. In order that the fire of the battleships should not be interrupted, the “destroyer” was built as a fast gunboat whose primary object in battle was to prevent the enemy from developing a torpedo attack, which would oblige the battle fleet to interrupt its fire. This

defensive concept was expressed in specific terms. Fighting Instructions laid down that the primary duty of the British flotillas was to stop the German destroyers.

If there be one sound principle in all human affairs, it is that the selected object shall be attainable: that the means shall be capable of attaining the end. The merely material part of the problem was not difficult of solution – it was no more than a question of money – the building of destroyers large enough to carry heavier gun armaments than those of the enemy. But while it is one thing to possess instruments of superior power, it is another to ensure that they shall be in the place in which they must be if they are to attain their object. The whole question depended upon whether the British craft could be in such a position in battle that they could assuredly intercept, and destroy or drive back, the enemy torpedo-boats before they could fire their torpedoes.

Exercises had been carried out before the war which had convinced many officers that it was impossible so to dispose the destroyers as to provide any assurance that they could be in such a position. Admiral Sir George Callaghan, who commanded the Grand Fleet before the war, considered the chances of being able to attack the enemy's torpedo craft to be "uncertain." And that it was realised that the defence was one upon which reliance could not be placed is shown by the fact that provision was made for turning the fleet away from the enemy if such an attack were made.

The battle came. The enemy flotillas attacked the British line. As Admiral Callaghan and many others had expected, the British destroyers, though superior in numbers and armament, were unable to intercept the enemy flotillas. The fleet turned away, and a battle which, if it had ended in a British victory, might conceivably have shortened the war, and would unquestionably have placed the Allies in a position easily to defeat the submarine campaign,¹ was indecisive.

Yet, with this lesson staring them in the face, we find officers to-day assuring their political masters that the cruiser must be of a great speed in order to play the part of a destroyer-of-destroyers and intercept the flotillas of an enemy in the very manner which proved impracticable in a great battle. A course of action more regardless of the lessons of experience it is difficult to conceive, more particularly when those same cruisers are to be armed with 8" guns. For such guns are unnecessarily large to cripple a destroyer; and, in order to meet such attacks as might take place, it is not a few heavy guns, firing slowly, that is needed, but as large a volume of fire as possible. It should be added, to conclude this part of the argument, that tactical instructions issued *after* Jutland, on October 21, reversing the *primary* function of the destroyer from the defensive to

¹ One of the difficulties of dealing with the submarines was the lack of sufficient flotilla forces to put a convoy system into operation. The continued existence of the High Seas Fleet implied the possibility of another battle. A large flotilla was therefore considered necessary with the Grand Fleet, and was not free to supply forces for the protection of the Trade. When the convoy system was established, the submarine was defeated.

the offensive, constituted a clear admission of the error.

Thus it appears to me unnecessary, in calculating the elements which govern the size of the fighting ship, to make allowance for a tonnage of more than that which shall include, with the maximum armament and endurance, sufficient for machinery capable of giving a speed of more than 25 knots. I am not blind to the fact that my views as to the tactical fallacy of defending a fleet against destroyer attack by means of cruisers will not be accepted by everyone: and that there may be those who will argue that if the British "destroyers-of-destroyers" at Jutland had been 34 knot "cruisers," they would have rendered it unnecessary for the British fleet to turn away. That is the logical conclusion which dissent must meet. But I would point out that nothing in the proposals I have made would prevent Powers from building themselves "destroyers-of-destroyers" for battle purposes of any practicable speed. The tonnage which is necessary and sufficient to enable a man-of-war to perform what I have called her "ultimate function" will be found to be sufficient to give such vessels any speed they desire.¹

SECTION III: ENDURANCE

The third need of the fighting ship is ability to go wherever her presence is required – that is, seagoing capacity – and endurance.

¹ Thus, the Italian *Dardo* class of 1,225 tons have realised a speed of 38 knots. The *Alberto di Giussano*, of 5,607 tons – ships with an armament of eight 6" guns – have made over 40 knots.

So far as seagoing capacity, in the sense of being able to stand weather, is concerned, we have only to consider the size of ships which have operated in all parts of the world. The German cruisers which operated in the Pacific, Atlantic, and Indian Oceans (*Karlsruhe*, *Dresden*, *Emden*, *Königsberg*, *Nürnberg*, etc.) were none of them vessels of over 5,000 tons.¹ These ships crossed the Pacific, rounded South America, operated in the North and South Atlantic. It is therefore to be presumed that they were seaworthy. The British cruisers of the *Sydney* class² were larger, but none exceeded 6,000 tons, and these showed equal seaworthiness. When we consider that smaller cruisers are at this moment serving in all parts of the world, we may with some confidence assume that a vessel of 6,500 tons will possess the essential quality of seaworthiness.

From that we proceed to endurance. By what is endurance determined? Is there a criterion? We know well that the greater the endurance the better – that is a lesson centuries old. But it does not answer the quantitative question, which, as Professor Whitehead has reminded us,³ cannot be evaded, of, How much endurance?

How much endurance is needed depends upon what ships have to do. The only service which is

¹ *Karlsruhe*, 4,820 tons; guns, twelve 4.1"; designed speed, 27½ knots; sea speed, 24.8 knots; coal endurance, 6,600 miles at 10 knots. Oil fuel carried also.

² *Melbourne*, 5,400 tons; guns, eight 6"; speed, 25.7 knots.

³ "To talk sense is to talk in quantities. It is no use saying that the nation is large. How large? It is no use saying that radium is scarce. How scarce? You cannot evade quantity" (Whitehead, *The Aims of Education*, p. 11).

measurable in definite quantitative terms is that of the performance of actual voyages. There can be no scientific basis in terms of time. No more reason can, for example, be given for saying that a vessel stationed on patrol duty (supposing such a service required) must be able to keep the sea for two weeks than for three, or any other number. While the ideal is a ship that could keep the sea indefinitely, and while a ship that can do so for one day only is useless, no exact time can, with the smallest pretence to strategy, be taken as the scientific need: and all attempts to fix such a figure will be the merest arithmetic or pure hypothesis.

Distance, however, is precise; and a definite operation of war is associated with distance. Trade or troops – the two subjects of transport – have to go from one port to another. Shipping has to ply either between port and port of its own nationality, or ports of its own and ports of other nationality.

To consider the first of these. The nations with widely scattered possessions are Great Britain, France, and the United States. What are the longest distances, without possible stepping-stones, between national ports? These appear to be:

		<i>miles</i>
British Empire	Hong Kong to Vancouver	5,751
	Bermuda to Falklands	5,859
France	Dakar to Diego Suarez	5,840
	Diego Suarez to Saigon	4,194
United States	Panama to Honolulu	4,683
	Honolulu to Manila ¹	4,762

¹ This assumes that Guam is not available: if it be, the voyage can be broken, Honolulu to Guam being 3,300 miles.

Thus we see that in the case of none of these nations does the voyage reach 6,000 miles, and the longest voyages – any, in fact, of over 5,000 miles – are of comparatively negligible strategical importance.¹

Passing from voyages between national ports to those between national and foreign ports with which trade is conducted, the outstandingly long voyages are those between the United States or European ports and South America. From New York to Rio de Janeiro or Pernambuco is 3,700 miles; from Liverpool to Pernambuco is 4,050. The cross-Atlantic passages are under 5,000 miles – New Orleans to Liverpool, for example, is 4,757.

In considering the endurance of a man-of-war in relation to the protection of trade between home and foreign ports, it is necessary to take into consideration practical possibilities. It would be wholly incorrect to assume that the endurance of a ship must be calculated on the basis of double the distance, in order that, having no port of her own in the outward end of her voyage, she must carry fuel enough to make the double voyage. Such an assumption never has been made. For one thing, as both the German and our own experience showed, it is possible, in waters where the threat of interruption is negligible, to provide for fuelling at the outer end. For the second, if the outward destination lies in ports in which the enemy can concentrate strength, bases are essential, and mere increases in endurance will not

¹ That is to say, so far as existing shipping is concerned. The reasons are obvious to anyone who considers the problem strategically.

prevent escorting forces from being overwhelmed and beaten in detail by superior force; or, being obliged to keep the sea while convoys are collecting, from being disabled by submarine attack. Without bases in the Mediterranean in the late war the movement of shipping could not have continued, with whatever endurance – within the bounds of practical possibility – it should have been possible to endow the protecting vessels.

If the strategical probabilities of the need for giving escort over the distances of above 5,000 miles be analysed – which it is easy to do, though I refrain from doing so here – it is difficult to come to any other conclusion than that if fighting ships are furnished with an endurance which will enable them to afford defence to shipping on voyages of that length they will be effectively provided.

The defence of a convoy cannot be confined to merely steaming in company with the shipping. The appearance, or a report of, an enemy vessel, will call for action,¹ in which the escort may have to fight or chase at high speed. A margin for the eventualities of war is therefore necessary. What that margin should be can only be a matter of opinion – there is no scientific measure, just as there is no scientific measure for the margin of safety adopted in the strength of materials. My personal view is that at the utmost this margin need not exceed 50 per cent., and that we should be nearer the demands of practical experience if we put it at one-third – $33\frac{1}{3}$ per cent.

¹ As, for instance, when the *Sydney* parted company from her convoy to find the *Emden*. The history of convoy protection affords many similar examples.

Finally, since the speed employed is a factor in endurance,¹ we have to determine what speed must be allowed for the voyage.

In the late war, convoys were of three classes – fast troop convoys, “fast” and “slow” mercantile convoys. Their speeds were 15, 12, and 8 knots respectively, but few convoys actually navigated at the higher speeds. Provided the escorting vessel is capable of making 15 knots over the voyage, she will be able to perform her duties as an escort.*

The endurance, calculated on these lines, which the fighting ship requires would be, at the outside 7,500* miles at 15 knots. I have no desire to put this down as more than an approximation: clearly, the premisses upon which it is based are matters of opinion, and as such are open to – nay, they invite – discussion. But I would express the view that it is upon such lines that the solution of the problem of endurance is properly to be found: and I would further remark that the duties of escorting convoys were performed during the war by fighting ships whose endurance was no higher than that indicated.

There is, I am aware, a belief in some quarters that a high speed, and great endurance at a high speed, are necessary for some particular strategical situations, in which a force must suddenly be

¹ In round figures, I am informed, a modern cruiser goes:

5 miles to the ton of oil at 15 knots

3 ” ” ” ” ” ” ” 22 ”

1 ” ” ” ” ” ” ” 31 ”

* I am not speaking of the flotilla escorts for defence against submarines, which is a totally different question.

* i.e. 5,000 plus 50 per cent.

rapidly rushed across an ocean to save a situation. On this point I may be permitted to quote a remark of Admiral Sir Reginald Custance: "In these transfers of force¹ it is of as much, if not more, importance to arrive with the fighting power intact as it is to make a quick passage, which means that no ship must be left behind, and the speed must be that of the slowest ship." And again, "The time required to transfer force from one position to another depends on the mind and judgment of the admiral, and on the arrangements for transmitting intelligence as well as on the speed of the ships. Quickness is of great moment in war, but a clear and rapid judgment is often more important than a fast ship. The latter is usually called upon to repair the blunders made by the former, as is often seen during manœuvres. Hence much of the strategical demand for dearly bought high speeds."

Since Admiral Custance wrote those words many years ago they have received ample confirmation. Though the *Inflexible* and *Invincible* were 25 knot ships, it was not at that speed, pressing as the situation was, that they proceeded to the South Atlantic to seek Von Spee, but at about 12½ knots. Moreover, it was not high speed that was needed to prevent the disaster at Coronel, but foresight: that is to say, the despatch of an adequate force, instead of an inadequate one, *in time*. The fact that, after Japan entered the war in August 1914, the only possible move of the

¹ He is speaking of Rojdesvenski's passage from Tangier to the Cape - 5,100 miles in 44 days (*Naval Policy*, p. 250).

German squadron must be towards the coast of America was so obvious that it was then pointed out in the Admiralty.¹ Force was available, and could have been sent sooner. Those "capital" ships, the battle-cruisers, whose retention in the North Sea was eminently desirable in the conditions of the narrow margin of superiority which resulted directly from the adoption of the Dreadnought policy, could have remained at home. Armoured cruisers could have been sent in the end of August, and, instead of Von Spee being met by the inferior forces under Cradock, he would have found himself facing a superior force of ships similar to his own - armoured cruisers.

Foresight, in brief, is a better weapon than speed. And it costs less. Lord Haldane's well-known saying, "Thinking costs nothing," can indeed be carried further in naval affairs. Thinking is the only road to real economy, whether in the preparations made in peace or in the conduct of the operations in war. How many thousands of lives, lost at sea and in the Passchendaele offensive, how many tons of shipping, how much effort and what diversion of naval flotilla strength, would have been saved, if it had occurred to those in authority to block and render useless the harbours of Ostende and Zeebrugge before the British army retired in October 1914!

We have now the elements at hand for determining the tonnage of the fighting ship which will enable her to perform her ultimate function.

¹ I speak with full information and personal acquaintance of this subject.

With an armament of nine 6" guns, a maximum speed of 24 knots, and an endurance of about 7,500 miles at 15 knots she can, without a shadow of doubt, do that which she is required to do.¹ To this certain qualities must be added. She must be provided with anti-aerial armament, protection against light projectiles, and subdivision or other forms of under-water construction to afford a reasonable chance of not being sunk by an under-water explosive.

Such a ship could, in all probability (as I am informed by persons competent to express an opinion), be easily constructed on a tonnage of 6,500 tons.

If my conclusions are correct, and if the armament, speed, and endurance I have suggested are sufficient to enable a vessel to undertake the ultimate duties of control at sea, it follows infallibly that if that tonnage is allowed for the individual ship, naval men are provided with enough "dead weight" to meet the needs of the ship in war. How they use that weight must necessarily be at their own discretion. If there be those who think a larger gun preferable, they could mount such guns, sacrificing numbers of guns, or speed, or any other factor.

SECTION IV: FIGHTING BATTLES

Could such ships as these fight "battles"? Why not? Let me suppose that in the recent war the German squadron in China had consisted of (say)

¹ Except in the case of 7,500 miles, which, as I have said, includes an element of opinion.

twelve of such ships: and that Great Britain had had a similar number of similar ships in the same seas.¹ Will anyone say that a "battle" would have been impossible between those two "cruiser" forces? "Battles," as I have remarked earlier, were fought at the Yalu, at Lissa, and Manila with smaller ships.² So also a decisive battle would – or could – have been fought in the China Seas between these two supposed cruiser squadrons. Nor, let me repeat, does it make any difference if the theatre of war be transferred from the China Seas to the Indian Ocean, the Indian Ocean to the Mediterranean, the Mediterranean to the Channel, or the Channel to the Caribbean. The *locale* of a battle does not determine the size of the combatants, as some would appear to imagine.*

No matter what limitation were imposed upon size, a differentiation in type would arise, as it has arisen in previous epochs. It is the essence of all operations of war, whether on land or sea, that *concentrations* of force are made: and these concentrations – armies or fleets – aim at the overthrow of the opposing concentration. On the other hand, services of direct protection of communication demand *distribution* of force. In the

¹ A position like that of the French and British in the Indian Seas in 1782, when (in July 1782) each had about a dozen fighting ships to struggle for the command at sea and the possession of India.

² Except for the two Chinese "ironclads" at the Yalu, of 7,400 tons:

		tons		tons
Yalu	. Largest Chinese	7,400	Largest Japanese	4,277
Lissa	. " Italian	5,700	" Austrian	5,130
Manila	. " American	5,800	" Spanish	3,090

³ Except in so far as size may be limited by shoal waters or other causes. For instance, Hyde Parker represented that the ships proper for a Baltic campaign were two-deckers. Also, ships must possess the endurance necessary to reach, or operate in, the theatre.

concentrations, power is needed. Speed is of little importance, for if a battle is to be won it is fought by overcoming the enemy with superior power.¹ There is therefore little doubt that if a limitation to a size such as I have suggested (some 6,500 tons) were adopted by international agreement, we should see nations obeying the inevitable law of providing themselves with a main body of fighting ships of which the characteristic is power, to which speed would be sacrificed: and with others in which the speed necessary for detached or auxiliary services takes precedence of power.

How great a differentiation is possible is indicated by the difference between two comparatively modern ships, the Swedish *Gustav V* of 7,200 tons and the French *Duguay Trouin* of 7,250 tons. The former is a 23 knot ship, armoured, and armed with four 11" and eight 5.9": the latter is a 34 knot ship with eight 6.1".*

We are brought at once to a question – what determines the speed of the ships designed specifically for the purpose of operating as a main body? Is there a limit below which they cannot go without being unable to perform their duties?

The question might well form the subject of a complete essay in itself. I shall not attempt here to go into it in detail. Since vessels were first propelled by machinery we have seen many different speeds in battleships. The full speed of

¹ I do not for a moment forget that speed may be of value in effecting concentration, as it was used by Suffren and Togo.

* I have referred earlier (p. 45) to the corresponding difference between the 14,000 ton battleships, the *Russells*, and the 14,000 ton cruisers, the *Drakes*. This question was fully dealt with by Sir Reginald Custance twenty-three years ago in his *Naval Policy*, chap. vii.

Teghettoff's fleet at Lissa was about 9 knots; of the main Japanese squadron at the Yalu, about 11 knots¹; of the American fleet at Santiago, something less than 15 knots – possibly 13.5 or 14²; of the Japanese main squadron at Tsushima, between 16 and 17 knots.³ In this variation and growth we can trace no strategical or tactical principle: the battle fought with the 16 knot squadrons at Tsushima was decisive: but so was that fought by the 9 knot ships at Lissa; while that fought at Jutland by the faster 19 to 21 knot ships, reaching (in the battle-cruiser divisions) 25 knots, was indecisive.

The battleships of the Naval Defence Act of 1889 were about 17 knot ships. Admiral Custance tells us⁴ that the flag officers summoned to consider the designs considered that the speeds given "were sufficient, in view of the considerable increase in size and cost involved in obtaining higher speeds."⁵

There appears to be no intrinsic reason for any of these speeds. They were simply those which were obtainable under all the conditions of the

¹ Though these were individually faster ships – of 13 to 19.5 knots – for the speed of the squadron is the speed of the slowest ships, less the margin necessary for manœuvre.

² The fastest ship was the cruiser *Brooklyn*, of 22 knots: the fastest battleship was the *Texas*, of 17.8 knots, the slowest ship was the *Indiana*, of 15.5 knots.

³ Fastest ships, the two *Nisshins*, 20 knots; slowest, the *Fuji*, of 18 knots.

⁴ Op cit., p. 227. A later ship, the *Prince George*, was a 17.5 knot ship.

⁵ Mr. Churchill's "recipe for making a battleship" confirms the view that there was no military criterion of the speed of the battleships designed before the war. "Next [after allowing for the guns and their disposition] you see what room you have got inside this hull for engines to drive it, and from this and from the length you get the speed" (*World Crisis*, p. 124).

time. Competition, improvement in machinery, played its part; and the demand for more speed increased the size – and cost – of the ship. Limitation of the tonnage of the individual ship would bring men back to serious consideration of how they should use the weight allotted to them – the 6,500 tons of dead weight. Bearing in mind the lessons of the past, they would aim at giving those ships of which their *corps-de-bataille* was to consist the utmost fighting power combined with the essential endurance. To do this they would have to reduce other elements, including speed, to the lowest figure compatible with the performance of their duties. Without dogmatising, I am inclined to the opinion that in the end the criterion to which we should be driven to apply is the speed of the normal merchant ship: for that would appear to be the real fixed “yardstick.” Although we are accustomed to think of the escorting duties of transports and trading ships being performed by vessels which we call “cruisers,” we do well to remember that “ships of force” must of necessity be occasionally used, as they have been used on innumerable occasions,¹ as escorts, particularly when effective cover was impossible. In that case, unless the convoy is to be delayed, the speed of the escort must be as much as that of the convoy. As we have seen, the bulk – 88 per cent. – of the shipping of the world has a speed of less than 16 knots. Until the general level of the speed of merchant ships rises considerably – and the rise

¹ The loss of the Smyrna convoy and de Cordova's successful attack remind us of the need for strong escorts when effective cover is not possible. The effects of those two blows is well known to students of war.

of speed in merchant fleets¹ is a very slow process – a speed of 18 knots would amply cover all needs.²

Let me repeat that I am not attempting to lay down definite figures, or to advocate the idea of a “sealed-pattern” battleship for all nations. Such an idea would be ridiculous in the extreme. Views on such points as this must necessarily differ, and I can well conceive that some officers might prefer a faster ship – say 20 knots – with less armament, and others a slower ship – say 16 knots – with more armament. But that is for nations, each considering its own individual problem, to solve for themselves: and he who by his study of war is able to translate the principles of fighting, in the planes both of tactics and strategy, most correctly into terms of construction – construction being applied strategy and tactics – will produce the best fighting ship out of the tonnage of deadweight allowed. The application of thought will result, it may be added, in great saving to the taxpayer, as well as increased security. The only forms which competition will take is competition in making the best use of a limited, but adequate, quantity of material, and competition in skill in its strategical, tactical, and technical employment: that is to say, in training, education, and administration.

¹ I do not speak of individual “greyhounds,” but of the main body of merchant shipping.

² The reader's attention is directed to chap. ix. of Sir Reginald Custance's *Naval Policy* for discussion of “The Speed of the Capital Ship.”

CHAPTER III

PRINCIPLES OF LIMITATION

THE method of limitation which, in my opinion, would meet the combined needs of economy, removal of international jealousy, and security, would be to put into practice certain definite principles which I venture to think arise out of any scientific examination of the problem.

What are these principles?

(1) That the strength of nations at sea should be based solely upon the needs of defence.

(2) That the dangers against which defence is required are two only – that of being invaded and that of being throttled by cutting of external communications.

(3) That those nations who are most exposed to those dangers are those which require the greatest quantity of defence.

(4) That it is only the people concerned who are capable of saying how much defence they need. They alone know what dangers they fear: and they alone know by what methods they consider they can render themselves secure.

(5) That which dictates size and function. Size must be sufficient, and should not be more than is necessary, to perform the function.

The keynote of any satisfactory solution of a problem is twofold: first, that it shall be based upon sound principles: second, that it shall be simple. Difficulties arise when, neglecting

principles, persons endeavour to work out formulæ. With all the emphasis at my command I assert again that there is a total absence of any principle in the so-called "rationing" system. The ratios bear no relation to that which is at issue – security. It is the purest self-deception to pretend that these navies have any other object than security. The quantity of force must therefore, unless we all live in a world of make-believe – a dangerous world when its sophistries find themselves confronted with facts – be sufficient to give security.

All the examinations I have made of this problem, in the study of past wars and present conditions, confirm me in the opinion that the only logical and practical system for the allocation of armaments is to establish as a matter of international policy that the basis of armaments is the need for security against the dangers to which nations believe themselves exposed from the sea. There are, as I have, I fear, repeatedly said, two dangers, and two only: their territories may be invaded; they may be cut off from their needs. Defence of their interests as neutrals in no way whatever determines the needs of their strength; if they are secure against those injuries quoted, the defence of their interests as neutrals will be secure. Prestige is no reason for great armaments.

No nation, or body of nations, can prescribe for the needs of another. In the first place, none are competent to determine whether a nation's expressed fears are or are not genuine. In the second – and this is highly important – none can say in what manner defence can be conducted.

Who would indeed be so vain as to presume that he can correct another nation as to the manner in which it proposes to defend itself? Can they say, "Your proposed strategy is bad. You are wrong in adopting a defensive. You could defend yourself with less force if you adopted an offensive" – or the reverse? The idea will not stand a moment's examination. Yet, in effect, that is what was being done by the recent Conference.

I hold that the quantity of force cannot thus be decided, and arbitrary limits imposed, without reference to strategy. The problems of nations differ, and each knows its own problem. There is no common ground.

But on the score of the size of the individual ship there is common ground. The individual ships of all nations have exactly the same eventual duty to perform. What that duty is I have endeavoured to show. It is, in its ultimate analysis, to arrest a merchant ship. There is here a definite, limited, and precise criterion. Put five officers of different nations round a table (with a non-naval chairman), whose terms of reference are defined, and there can be no doubt that – assuming them to be men of ordinary ability – they could say what guns, what speed, what endurance are required for that purpose. And, inasmuch as there is in reality no mystery in this matter, neither do I doubt that a superior body of educated men, whose training has fitted them to investigate problems, could draw from these officers their reasons for whatever demand they make.

For these reasons, the method which alone
Is

fulfils the conditions of combining those essentials – real security, a feeling of security, mutual confidence, and economy – is to agree in the first instance to limiting the ship of war to the smallest size which will permit the performance of her ultimate function: and in the second to leave nations free to provide themselves with as many of these vessels as, in their opinion, the needs of their national defence demands.

I am aware that it will be said that this will re-introduce competition. To that my reply is that competition will not arise if all nations publicly define their policy. When Great Britain with wisdom adopted, as a matter of her national policy, the so-called "Two Power Standard," so far from that declaration of policy causing competition, it prevented it. It was a steadying influence. Aware that that was her policy, and that that policy would be adhered to, other nations did not compete until, by a foolish and costly shipbuilding policy on her own part, a policy dictated by a wrong conception of war, exalting material above the man, she put it out of her own power to afford to maintain that policy in the face of the competition of an ambitious foreign Power. By weakening, she encouraged competition, as that far-seeing servant of his country. Sir Eyre Crowe, foresaw. "The greater our efforts at disarmament, the more persistent will be Germany's efforts to overtake us." A clear policy, with a certainty that it will be followed, is a great stabiliser. I would go so far as to say that the danger of the growth of competition is a theory

only, wholly unsubstantiated by the test of experience. Competition will only arise, as it did with Germany, when a policy other than that of defence, is followed. Wherein is this competition, claimed as inevitable, to be found in the history of naval strength throughout the nineteenth century after Britain's declaration of policy?

The greater maritime Powers have been the greater for one of two reasons throughout history. Either they have been trading and colonising nations, with hostages to their fortunes in the form of colonies or shipping, over or on the sea: as successively Athens, Carthage, Venice, Holland, and Britain: or they have been Powers in the process of expansion, seeking to deprive others of that which they possessed: as Rome, the Mahometans, and more recently Germany. Naval forces have been an expression of a policy of defence in the one case, and their quantity has been determined by the needs for defence, and defence only. In the other case, when they palpably and plainly exceed the needs for defence of territory – either metropolitan or oversea – or of shipping, they are expressions of an offensive intention: an intention to impose that nation's wishes, by force, upon other people: to deprive them of territories or rights, to interfere with their conduct of affairs.

When security is the issue, the measure of force depends upon three things: what there is to defend; by what force it may be attacked; and the manner in which force is intended to be employed in defence.

The nations, therefore, who have most hostages at and over sea can only determine how much force they require for their security when they know by what force they may be attacked. The starting-point, therefore, of any calculation of force is the force of the potential attacker. The potential attacker is he who, having no need to defend himself since he is not dependent upon the sea (being able to support life by communications over his land frontiers), is therefore free to devote his energies to offence: as Pellew expressed it in the previously quoted memorandum.

The fundamental error in the system of ratios which originated at Washington was that it reversed this process. It established, purely arbitrarily, certain strengths for the "greater" maritime Powers, and allotted proportional strengths to the "lesser," irrespective of whether the resulting quantities were adequate for the latter's security.¹

In my earlier remarks I have expressed the opinion that there is no strategical, tactical, or technical reason for a fighting ship – whether called "capital" or otherwise – to be of larger dimensions than something between 6,000 and 7,000 tons – the figure, susceptible of course to correction, I have put at 6,500. The solution of the problem of naval armaments which, in my belief, is most in accordance with facts, least artificial – all limitations necessarily impose some artificiality – and, in the long run, most economical and least provocative, would be by the formula, "The maximum size of the fighting ship is 6,500

¹ I am speaking now only of the "battleship" strength.

tons.¹ Nations shall be at liberty to furnish themselves with as many ships of this and smaller sizes, armed in any manner that they may choose, as they consider the needs of their security demand." This has not only the advantages represented above. It is also simple, and, as all experience shows, simplicity is the most valuable of all qualities in any international agreements. The difficulties, the doubts and suspicions, the manœuvring for advantage, the petty, the contemptible watching each other for breaches of an agreement: all of these are bound to arise – human nature being what it is – when an agreement attempts to go into details. Intended to clarify, details lead to confusion, to dispute, to suspicion, to expense. The laws and constitutions which stand most strongly are those which are unwritten but are based upon main principles. So I hold that in like manner the naval agreement which shall attain its true ends – security² with Economy – should be simple, and based upon ascertainable principles: and the formula suggested above meets, I venture to think, the triple need of security, economy, and simplicity.

Correct as I believe this to be, and firmly convinced as I am that neither on strategical, tactical, nor technical grounds is there any necessity whatever for a fighting ship to be larger than 6,500 tons, I am very well aware that there are political

¹ I put this figure as one upon which to start discussion.

² By security I mean not only the security of one's own country, but of others: and these are not incompatible. It is the sense of insecurity which gives rise to trouble.

difficulties standing in the way, created by the Treaty of Versailles. By that Treaty Germany was allowed a limited number of ships of a larger size – 10,000 tons – one of which she has already built, and others are, apparently, to follow.

No great subtlety is needed to appreciate that, however indefensible, on principles of logic, compromise may be, it is not infrequently necessary to make a compromise between that which is theoretically both possible and most desirable, and that which is practically more advantageous. Let me make it clear, however, that in indicating a possible form of compromise – a form which in my opinion must cost the nations more, and will make them no more secure – I am doing so in deference to political reasons. The responsibility for the rejection of the least costly in favour of a more costly method of reduction of armaments does not rest upon the seaman, but upon the statesman.

Any proposal to modify the Treaty of Versailles must be expected to be met with opposition from France – an opposition to which other nations must pay respect; for the Treaty is in her eyes her palladium. Yet without an alteration in the Treaty it would clearly be impossible for her – and for other Powers – to reduce their fighting ships to a size smaller than those allowed to one Power.

The possibility that Germany might be prepared to abrogate her right to build ships of that size, and conform to a formula such as I have suggested, is one that lies beyond my province, and I shall not attempt here to discuss it, though surely it is worthy of the fullest possible discussion. Let

me, however, examine the possibilities of limitation on the assumption that no jot or tittle of the naval provisions of the Treaty of Versailles can by any possibility be altered.

Strength being a relative matter, it must relate to something. It requires to be related to some fixed standard. Thus in the past, under the "Two Power Standard" policy, the standard for Britain was the combined strength of the next two Powers, which happened to be, at that time, France and Russia. But what was *their* standard? What measured *their* needs? They, so far as one can see, furnished themselves with such forces as would give them sufficiency to render themselves secure against those Powers, their neighbours, which were their hypothetical enemies. I will not say that this constitutes a comprehensive statement of the naval policy of those countries, but it would seem to be, so far as a policy can be generalised, a fairly correct generalisation.

If we turn our eyes to the present day, can we determine any fixed standard – any "yardstick," to use the recently adopted but not inappropriate term – which is capable of being applied as a measuring-rod to other navies? I venture to think that we can. Although the Treaty of Versailles may have many imperfections and disadvantages, it does offer us a fixed standard by which it is possible to measure actual, quantitative strength.

The Treaty, as before remarked, imposed upon Germany a definite strength in her great, or "capital" ships, both as to quantity and size, namely, eight ships of 10,000 tons each. May not

this figure – eight – furnish us with precisely the quantitative criterion in the strength of the mass which, if we reject the simpler formula, we need?

Let me suppose that all the nations should have banished from their minds the romantic conception of prestige, and the strategically and economically incorrect conception of defence of rights as neutrals, as the governing or even contributory factors in estimating the needs of their defence; and that they should, one and all, have returned to the old, prosaic, and commonsense method (commonsense, that is to say, unless they have dreams of expansion at the cost of, or dictation to, other nations) of estimating their needs in terms purely of their practical – and *practicable* – defence.

We see, then, a unit force of eight ships as the criterion. Who is the nearest neighbour to whom these eight might spell insecurity? France. Proceeding on the principles which appear to me logical, the first step would be to invite our French friends to say what number of ships capable of meeting those eight would be considered necessary for their own security.

What her answer would be I should not attempt to determine, holding, as I do, that no one can determine the needs of defence of another. Let me, however – in illustration only – suppose that she should say that, for the purpose of security against the danger she sees to herself in that force, she required ten of equivalent power.¹

¹ I take ten purely for convenience. It might be that she would require a larger number. It does happen to coincide with the number which, according to her *projet de loi*, she has defined as her net need, irrespective of what other Powers might build.

Then comes Italy. Again without pretending to prejudge her attitude, we might suppose that so far as Germany was concerned she would feel herself in no danger with even a lesser number; but that her number would depend upon those of France. Important as it might be for France to complete her military mobilisation by the transporting of her forces in African France to metropolitan France, it would be no less important to Italy, in a quarrel, to be able to prevent that concentration. Therefore she would always build a number equal to that of France. She would require no more, but she could not feel secure with less. The number asked for by France being ten, ten would also represent Italy's needs. I shall not attempt to discuss whether France would accept this situation, which is obviously the one upon which a final settlement of this part of the question depends.

The next Power in order of magnitude – as we now stand – is Japan. If Japan be asked what she needs for her security, it is permissible to presume that her reply is in the form of another question. Her security depends upon being able to preserve her communications in the China Sea, in which both her greatest interests, those territorial and commercial, lie: for she has no colonies outside that area. Would she not, then, ask what forces the remaining Powers, Great Britain and the United States, desire? The policy of the United States has been declared – equality with Great Britain. It is then for Great Britain to declare her policy.

If the British Empire should return to the old and well-established policy of the "Two Power Standard," her reply would be that, pending Japan's decision, her requirements were twenty. On that figure the demand of Japan, if she considers, as it is understood that she does consider, that a strength of 60 per cent. of Great Britain's affords her security – that "parity" of security to which no one can offer a vestige of opposition – the figure which would result for Japan would be twelve: and although a Britain with twenty "capital" ships would not possess the precise mathematical figure of equality – which would demand twenty-two – it is justifiable to express the belief that the true meaning of the "Two Power Standard" would be sufficiently expressed by the adoption of the lower figure: for it could not be maintained that the security of British interests was so nicely balanced that a meticulous adhesion to arithmetic was demanded.

What then do we get? We get the following as the number of 10,000 ton "capital" ships:

Germany	. 8
France	. 10 ¹
Italy	. 10 ¹
Japan	. 12
British Empire	20
United States	20 – or such number as her need of defence against invasion and block- ade are considered to demand.

We are here brought up against a question of

¹ Cf. the French and Italian battleship strength before the war (p.18). There was then an Austrian fleet in the Mediterranean and a German in the North Sea of which France had to take account. Neither exists to-day.

cost. The German ships are (it is understood) extremely costly. Special materials and special methods of construction have been employed whereby – if such figures as have been published in the Press are correct – they cost about £4 millions sterling each, in place of (about) £2 millions, the cost of a ship of that size built under the normal methods of construction.¹ Wherein, then, is there much economy? Fifteen (the present number) battleships of 35,000 tons at about £7 millions each cost £105 millions. Twenty battleships, even at the extreme of £4 millions apiece, cost £80 millions.

If the saving of some £25 millions in capital cost² is considered to be of too little importance to be worthy of consideration, there are nevertheless other reasons and courses of action open to our examination.

The extra cost per ton of the German ship is caused by the adoption of expensive materials and methods in order to get the greatest power into a given restricted tonnage. The same amount of power can undoubtedly be obtained (so I am informed by persons competent to express an opinion) on a slightly larger tonnage, using the “normal” methods of construction. Thus the cost of the twenty ships need by no means approach so closely to that of the present fifteen. If, for

¹ i.e. at an assumed rate of about £200 per ton.

² The maintenance cost is also clearly a question of much importance, which I shall not attempt here to examine, and will confine myself to the reminder that the administrative elements of the number of ships kept in full commission, and the systems of manning and training, are of fundamental importance.

example, we should take a figure which has been suggested to me as practicable, of 12,500 tons, a ship of "normal" construction would cost something in the neighbourhood of £2½ millions instead of the £4 millions of the *Ersatz* ships, and the saving, on the *corps de bataille* would be some £55 millions – a figure which even a modern Government would hardly treat as negligible.

That is one possible course. There is another. Averse as I am from artificiality wherever it is avoidable, I recognise the possibility of financial limitation. By agreeing to a limit of the cost per ton we should get over this difficulty. It is true that there are objections to this. In some countries the cost of shipbuilding is higher than in others, and therefore more fighting power can be got by the latter out of a given sum of money; or, again, naval budgets may be "manipulated." Notwithstanding these possibilities, I venture the opinion that the risks which nations run by accepting them is, in reality, well and wholly set off by the saving and contingent advantages. Even if it should so happen that some nations find themselves privileged because their building costs are lower than others, and that some should be dishonest, I should not be concerned. In the end, a war will not be won because a nation's ships are a trifle better than another's.¹ Wars are won by men. It is the strategy, the tactics, the skill of

¹ The slight difference possible might turn the scale if the opposing forces were exactly equal in other respects – equal strategical, tactical, and technical skill, equal determination. It is needless to remark that such conditions never occur. "Never, never, never are two equal determinations opposed to each other" (Ardant du Picq, p. 146).

seamen and gunners, which decide the issue: and no superiority in the material which could possibly arise out of the causes supposed would be sufficient to compensate for inferiority of personnel.

The whole experience of war at sea affords ample proof of this. It was the prepossession for more powerful weapons than those of our possible enemies which led to the competition in, and now causes the retention of, the great ships, and has given us exaggerated and costly battleships and cruisers. The false theory derives from a belief that weapons are the most important element in victory. This is a theory to which no student of war has ever subscribed, natural though it is for a "technical expert" to be deluded into belief in it. Mahan commented on it many years ago in these words. "*Historically, good men with poor ships are better than poor men with good ships: over and over again the French Revolution taught the lesson, which our own age, with its rage for the last new thing in material improvement, has largely dropped out of memory*"¹ — an opinion at direct variance with that of a modern flag officer who not long ago, with no small hardihood, expressed the opinion that it was to the material discrepancy caused by the mounting of "big cannon" by Henry VIII in his men-of-war that "England largely owes her rise to sea power in Elizabethan days, and all our subsequent history right up to to-day must have been affected by it." One can

¹ Mahan, *Influence of Sea Power upon the French Revolution and Empire*, vol. i., p. 102.

only regret that those who put Clio into the witness-box should not put themselves to the pains of sitting at her feet before they do so. When the beliefs of those in authority are founded upon such wholly fictitious foundations both of fact and philosophy, there is little wonder that navies cost such sums as they do to-day.

Mahan was not a man to speak at random. That his statement is an historical truth can be confirmed by anyone who chooses to subject it to the acid-test of fact. We see it when Macedonia, with a much smaller fleet, defeated Egypt each time they met¹; when Ruyter, with a fleet mounting 4,136 guns, gets the better of a Franco-British fleet mounting over 600 more guns; when 27 ships at Trafalgar obtain one of the world's greatest victories over 35. The great commander is he who, like Cæsar, finds "the guarantee of victory not in the massiveness of his forces but in the celerity of their movements, not in long preparation but in rapid and various action, *even with inadequate means*."² At sea, as Mr. Tarn remarks, skill and the use of manœuvre perished when the Romans built larger and heavier ships and manned them with legionaries. Art disappeared, and mere weight of metal took its place. The machine had dominated the man; the taxpayer paid for the luxury. But he got no better security.

There are those who suppose that unless the

¹ W. W. Tarn, *Hellenistic Naval and Military Developments*, p. 143. Mr. Tarn recalls that the best victory recorded was when, with an inferior force, the Greek captured or drove on shore 120 out of 140 of the enemy fleet.

² Mommsen, *History of Rome*, book v, chap. iv.

fighting man is furnished with weapons superior to his opponent, his courage will fail – his “morale”¹ will suffer. “The possession of better weapons has a great effect on the morale; it improves it: and morale in turn reacts on skill in handling the weapon. Supply inferior weapons, and, as soon as the unfortunate soldier gets to know of it, his morale goes down and his skill follows.”² No science or art, said Hume, can go beyond experience, or establish any principles which are not founded on that authority. In what experience, one wonders, does the writer of such stuff as this garner his facts? This kind of reasoning, one had supposed, had gone out of fashion since Bacon’s time, or at least the time of Descartes.

Is it not a commonplace that the French built better models than ourselves in the eighteenth century? Every historian is familiar with the correspondence on this subject. Were the well-rigged and well-found ships, lying uninjured in Brest and Toulon, not better equipped than the “storm-tossed vessels” of Cornwallis and Nelson, with rotten sails and often twice-laid rigging? Bonaparte’s wonderful campaign in the Alps was won by troops deficient in cavalry, in stores, in clothing, food, tents, and baggage; nor was this deficiency concealed from them. “Soldiers – you are hungry and naked” – who does not know Bonaparte’s ringing address – and who can

¹ To use a word that has come into vogue, apparently on the belief that it is French: which it is not, any more than it is English.

² *Journal of the Royal United Service Institution*, February 1930, p. 65.

say, in the face of such and many another example, that the fighting man's morale goes down when he knows that his material is inferior to that of the enemy?

I am very far from arguing that it is sufficient to supply inferior material. I am combating the exaltation of material which lies at the root of these increases in size, which I must (at the risk of wearisome iteration) remind the reader are the principal cause of the burden he bears for the cost of armaments. "Let us not pay too much attention to those who in military matters base everything on the weapon, and unhesitatingly assume that the men serving it will adopt the usage provided and ordered in the regulations. . . . Let us learn to distrust mathematics and material dynamics as applied to battle principles. We shall learn to beware of the illusions drawn from the range and the manœuvre field."¹ In these words, written many years ago by the brilliant and brave French soldier, we can discover one of the most fruitful of roads to economy: economy consistent with security, and bringing in its train additional efficiency.

¹ Ardant du Picq, *op. cit.*

CHAPTER IV

OBJECTIONS

SECTION I: THE NEED OF A STRONG NUCLEUS

HAVING set forth this argument, it is proper that I should meet certain objections which have been made, which I did not meet in the earlier chapters, as to do so would have confused the argument with detail.

One of the principal objections preferred to a reduction in size is that a fleet must contain a certain number of heavy ships, called a "core" or a "nucleus" of a special type heavier than those which are called "cruisers"; and that the size of a battleship is determined primarily by the necessity of being able to destroy any cruiser.

This particular objection to reducing the size of the individual fighting ship finds its support in an inaccurate synthesis. It suffers from two faults – firstly, mistaking the means for the end; and secondly, the common logical fallacy of *post hoc ergo propter hoc*.

The immediate aim of all fighting forces in military operations, whether by sea or by land, is to overcome those of the enemy. The means by which those forces attain their object are found in the adoption of such dispositions and movements as will result in confronting the enemy at the decisive spot with superior force, and using

that force in such a way as will inflict the greatest possible injury upon him.

Superiority may take several forms. It may be moral – confidence in command, personality, efficiency; as we see a small body of police, practically unarmed but disciplined, organised and centrally directed and therefore acting in unison, dissipating a mob many times their size; or an army, like that of Clive at Plassey, whose weapons were in no way superior to those of the 40,000 under Surajah Dowlah, decisively defeating them. It may also be material: in which it may take either one of two forms: instruments individually more powerful – armoured cars to deal with a mob, machine-guns to overcome Soudanese armed with spears and swords, a *Merrimac* against a *Hartford*; or more numerous units, either men or ships, not individually stronger or better armed than their opponents. It is not incorrect to say that, in war between what are called “civilised” nations – meaning those most advanced in the knowledge of physical science – this latter is the usual form which superiority takes. Even so, however, success will not attend the superior numbers without superiority in command – that is, in capacity to use them better than the opponent. We all know the saying of Napoleon that it was not the Roman armies, but Cæsar, who conquered Gaul; Alexander, and not the Macedonian phalanx, who marched to the Tigris and Indus. The instruments wielded by Cæsar and Alexander, by Turenne, by Marlborough, by Napoleon, by Ghengis Khan, by Nelson, Togo,

or Tegetthoff, were not superior to those of their adversaries. The victory was gained by the commander: and his art consisted in the use of strategical and tactical manœuvre, each in its proper sphere, which brought superiority into play at the place and time at which a decision was desired.

Neither the operation of the armies or the fleets concerned in these campaigns, nor in the battles of those campaigns, were designed or possessed this hypothetical "nucleus" or "core" of men of great strength or ships of great power which forms the substance of the objection to reduction in the size of the world's fighting ships of to-day. The fundamental principle of the art of war, as expressed in Jomini's words, remains unshaken in its truth by 16" guns, mines, or torpedoes. It still consists in bringing the mass of the force of the army — which may be an "army" on land or at sea — by means of strategical concentration to the decisive point: so to manœuvre as to bring the mass into action against fractions of the enemy's fleet: to throw the mass, in battle, on the decisive point of the field of battle, or the part of the enemy's force it is designed to overwhelm; and to act simultaneously, with energy and determination. Let anyone analyse the tactics of those great sea commanders de Ruyter, Suffren, Nelson, or Togo, and he will see that that intention stands ever predominant in their thoughts and actions.

Thus the idea that this necessary concentration of force can only be achieved by the possession of ships of vast individual strength is baseless.

Let this statement be tested by reasoning and by experience.

The units of an army are individual men, the units of a navy are ships; and both a navy and army are composed of a number of their units. When one nation fights another on land, it forms its units into bodies, called armies, and its aim is so to distribute and manœuvre its assemblage of men that it can confront the enemy with superior force at the point where a decision is sought.

Superiority, in its physical and material sense (omitting, that is to say, those incalculable elements of skill in command and in the use of weapons, in courage, discipline, and tenacity), consists in larger numbers. The army in the field is this collection of armed men. In order to feed this body of men it may have communications by a base of supply, by means of roads, rails, canals, along which its food, its munitions, its reinforcements, pass. As the loss of these would disable the army, that line of communications must be protected: and if the line passes through territory where hostile bodies are able to operate, it can only be protected by armed men. It requires information about the enemy. This can be obtained only by means of human agency – man.

No necessity has ever been imagined for the men who compose the main body to be more powerful than those guarding the communications or scouting, nor for them to be more heavily armed. It may be that the duties of the scout do not make a demand upon him for so many weapons as the man composing the main army. He may be more

lightly armed: mobility may be of greater importance to him than to the men in the main body. But the difference between his "armament" and that of the man in the ranks is due to the fact that the duties he has to perform do not make a demand upon him to carry heavier weapons, and probably call for greater mobility: it is not due to an inherent need for the man who takes part in what is called a "battle" to be able to overcome a scout if he meets him.

There is in this respect no difference whatever in the naval forces. A "fleet" is merely an army at sea; as, indeed, it is called by the French. It is a concentration of a number of fighting units – ships – as the army is a concentration of a number of its units – men. Like the army in the field, it has lines of communication to defend – the lines which supply its own needs, and also those which supply the needs of its country by sea: and it, like the army, requires information. As the duties of obtaining information can be performed by ships less powerfully armed than those which can be built for the purpose of the main body, so weaker ships can be employed in those duties: as we see light Liburnian galleys used in the trireme fleets of the Mediterranean, or as Charles II in the third Dutch War, or James II at the time of the threatened invasion by William of Orange, engaged hoys for the purpose of scouting, or as the Japanese, in the Tsushima campaign, increased their number of scouts by the use of merchant vessels of no fighting value. The size of the triremes of Athens or Rome, of the battleships of the Russian fleet of 1905, was not determined by the need for

overcoming these scouts, nor did the Russian *Rurik* decide the size of the Japanese battleships.

At all times in the history of shipbuilding men have sought to build fighting ships as powerful as their knowledge and their materials permit. These formed the "standard" fighting ships. The theory of the need of a "nucleus" or "core" finds no support in any period of history. The triremes did not merely form a nucleus. They were the ships of which the fleets were composed. On this subject Mr. Tarn¹ remarks: "Down to the final destruction of Athenian sea power at the battle of Amorgos in 322 *the standard warship in the Mediterranean had been the trireme*: from Amorgos down to Actium in 31 B.C. the standard warship was the quinquereme; for the late fourth century and the first half of the third century *saw a regular race between the Hellenistic Powers in building larger and larger warships*. In the second century the great ships began gradually to fall out of use, not because they were inefficient, but partly because they were expensive and needed such large crews, and partly because the new masters of the Ægean, Rome and Rhodes, did not use ships larger than quinqueremes." Thus, so far as Athens and Rome are concerned, the nucleus theory is a pure fiction. Exactly as in the eighteenth century the "standard" ship was a two-decker of about 60 or 70 guns, so the Athenian standard fighting ship was one of medium strength. So it was with us in the nineteenth and twentieth centuries. Size increased in consequence of

¹ *Hellenistic Naval and Military Developments*, p. 122.

competition, not of inherent strategical or tactical needs; and when the burden of expense eventually grew intolerable, the size came down by common consent at Washington. The Greek triremes were large, not because size was necessary to overcome the single banked galley, but in order to be powerful enough to meet the similar ships of another State. She was the most powerful vessel which could then be built with due economy in numbers sufficient for her purpose, and handled effectively, but as she was unnecessarily large for various duties, so common sense, not some such dogma as that adumbrated, dictated the use of weaker ships for purposes for which so much strength was not needed.¹

One need not be a seaman to distinguish how wasteful it would be to detach an Athenian trireme to deal with a pirate galley from Corinth,² a three-decker to suppress a horde of Dunkirk privateers (which, incidentally, she could not do, as she could not overhaul them), or a *Hood* to free the Indian Seas of a *Königsberg* or an *Emden*. Differentiation never has, as these theorists suppose, proceeded upwards, scaling up the battleship to enable her to "crush" the cruiser, and

¹ Thus, in the second and first centuries B.C., a new type of small vessel, the Illyrian lambros, or Roman liburnian, was introduced. A fleet contained a definite proportion for scouting. The normal arrangement in the Persian, Carthaginian, and Ptolemaic-Egyptian and Eastern Roman fleets (*temp.* Civil Wars) was three squadrons of 65 ships – 60 of the line and 5 scouts. Previously the triremes scouted for themselves, as British two-deckers often had to do in the eighteenth century owing to a shortage of frigates – the liburnians of their day.

² When the Mediterranean became a Roman lake, the Imperial standing fleets were needed only to suppress piracy. Big ships then were unnecessary, for lesser ones were sufficient to overcome the armed merchant vessel – which the pirate was. The large ships then, as they are to-day, were merely the result of competition, not the result of a need intrinsic to sea-warfare.

determining her size by the need for ability to do so; but in scaling down the fighting ship to the smallest size with which certain duties required can be performed. As competition, and competition only, drove up the size of the fighting ship, so she became larger than was necessary for many of the purposes of war. Small vessels continued to make their appearance, and these small vessels had to be dealt with. The most proper, the most economical, and the most effective instruments to deal with them were similar small vessels. The gun brig, the sloop, the gunboat, the third-class cruiser, and the light cruiser, each in its day is the expression of that need.

When we are told that there is in naval warfare this need for a "nucleus" or "core," the inference is that experience has shown that naval warfare cannot be successfully conducted without such a "nucleus." Yet we have seen great wars conducted at sea, and great battles fought, by fleets which had no such a nucleus. Wherein do we find this supposititiously necessary "core" in the fleets at Actium, at Salamis, at Lepanto, in the hard-fought Dutch wars, or, more modernly, in the battle of the Yalu? The fleets were a mass of fighting ships, a collection of many armed vessels, varying certainly in size. But no "core" of specially heavy ships decided, or was needed to decide, these actions.

If one should suppose that some reason – the shoalness of harbours, for example, in a given sea¹ – permitted the use of no vessels larger than a

¹ As the size of the Dutch "capital" ships was limited by the shoal waters of the harbours and coasts.

1,000-ton destroyer of to-day, and that the duties of scouting could not be performed by vessels of less than 1,000 tons – a perfectly possible condition – would naval warfare between two Powers whose units consisted of such 1,000-ton ships be impossible? Certainly it would not. A differentiation would probably be made between those vessels whose primary function was scouting and those of the *corps de bataille*, as was made between the 13,000 and 14,000 ton cruisers and the battleships of the same sizes,¹ but that is the only difference that would result. All the operations necessary for obtaining command of the waters concerned, and exercising control in them, would be performed by the 1,000-ton fighting ships.

If we look into the great period of sea warfare which, beginning with the Dutch War of 1652 – 1654, ended with the close of the Napoleonic wars, do we discover this “nucleus theory” in the design of fleets? The British fleet then numbered over 200 sail of what were called “ships of the line.” These were her main fighting units. The words “core” or “nucleus” are as inapplicable to this vast force as they are – to take another instance – to the contemporary “capital” ships of Spain, whose fleet in 1778 consisted of 67 ships of the line and 32 frigates. Can 67 be called a “core” or “nucleus” of that fleet? Such a use of the word is absurd. The fighting squadrons were *composed* of these ships, and over and above them, for the purposes previously mentioned, there was a host of vessels, frigates, corvettes, sloops, gun

¹ *Vide* p.p. 45, 91 *ante*.

brigs, and cutters, who performed those minor duties, in opposition to the similar vessels of the enemy, large enough to perform those duties. If the enemy sent out more powerful ships to attack the lines of communication, or other distant objectives, larger ships were sent to guard them: but they were sent, not because of any supposed inherent necessity for power to overcome what is now called a "cruiser," but to meet the enemy with equal strength.

Is it to be supposed that if, in the Russo-Japanese War, Russia had neither possessed, nor had been able to send, any "battleships" to the Far East, there would have been any necessity for Japan to possess "battleships" in order to carry out her invasion of Korea? The "capital" ship would merely have been the largest cruiser, as she was in the Chino-Japanese War, when the Japanese "capital" ships were the whole of those light cruisers, none of over 4,200 tons, which beat the Chinese fleet at the Yalu. The only "core" which figured on that occasion were the two 7,400 Chinese ironclads—and they were on the beaten side.

I presume the underlying idea of a "core" is that a fleet requires some impregnable strong central body—a sort of floating citadel—round which it can rally; or that as an army of young troops can be stiffened with a percentage of veterans of greater powers of moral resistance, greater experience, so the fleet may be correspondingly strengthened. But the analogies do not hold good. Navies do not rally round a central force: and, in war on land, citadels do not move against citadels.

The analogue to the citadel – the impregnable or quasi-impregnable last hold of an army – is the naval base. There are, it is true, some who, in spite of Mahan's criticism of the "fortress-fleet" theory, adhere to the notion that battleships are needed in order to take the place of permanent fortifications by naval bases, but the absurdity of this is obvious to anyone who has made any serious study of the experience of war.

The need for stiffening a body of unseasoned troops with seasoned men has no real analogue at sea. The stiffening is mainly of a moral character – it imparts steadiness, it distributes acquired skill and accumulated experience. As men acquire experience, the need lessens and disappears. In a navy the stiffening is a purely material one. A few more powerful ships can certainly be substituted for a larger number of less powerful ones; when the enemy has no large ships, large ships can then be substituted for lesser ones. But any advantage there may be (and there are some, as well as some disadvantages, in such a course) disappears if and when the enemy furnishes himself with similar vessels. Any superiority that previously existed disappears. The balance is restored: and the need for large ships then arises for the simple reason that the enemy possesses them. We return to the old, the unescapable answer. The size of the ship is dependent upon the size of that which she has to fight, and not upon a supposed "natural law" which proposes to render a "core" or "nucleus" a necessity in naval war. There may have been occasions in military history when the "core" theory held

good. Frederick of Prussia had his giant guards, Napoleon his veteran guard; the East India Company's armies had their "core" of British troops. Yet all of these had their value only so long as the enemy was not in possession of, and able to use, similar *corps d'élite*. It may be that the knights in armour of the Middle Ages are an expression of the "core" theory: but, if so, the pretensions for such a necessity were surely dispelled at Crecy, Agincourt, and Sempach.

I am not for a moment asserting or pretending that there is no advantage in possessing ships more powerful than those of an adversary. Ample experience demonstrates that there is. But equally ample experience demonstrates also that attempts on the part of one nation to put itself in a privileged position fail. Progress in design proceeds approximately at the same rate throughout the nations capable of becoming sea Powers. The same thing happens on land, as Ardant du Picq pointed out in his study of battle. "A new invention," he said, "may at any time assure victory, but practicable weapons are not invented every day, and *nations quickly put themselves on the same footing as regards armaments.*"¹ The truth of this statement is proved by ample experience.

A temporary advantage may admittedly result from a policy of enlarged construction: but temporary only it will be, as it was in the case of the "Dreadnought" policy from 1906 onwards, which, in the end, reacted so unfortunately upon this country.

¹ Ardant du Picq, *Études de Combat*.

The history of the development of the destroyer has its bearing upon this matter. The evolution of the destroyer was due to the French torpedo-boat policy. As that policy was interpreted in England, the intention underlying the establishment of a chain of torpedo-boat bases round the French coast was to attack British shipping, or the British fleet, at night in their passages through the Channel or in their ports. The torpedo-boat was too weak, too liable to be run down by a slower cruiser in rough water, to allow her to work by day: and shipping in the Channel could be routed close to the British coast and therefore, in most parts of the Channel, too far from the French coast for the torpedo craft to venture to attack by day. The destroyer¹ was a larger vessel. She had a heavier armament, sufficient to overcome the weaker torpedo-boats, even though these should be superior in numbers. She had endurance enough to take her across the Channel and back. She had speed sufficient to overhaul the torpedo-boat, and the combination of her size and speed gave her reasonable chances of escaping from the cruiser of the day. *Vis à vis* the torpedo-boat, she was in fact a very powerful "capital" ship: and, her size being still small enough to make her a poor target for the enemy's torpedo, she could navigate at night without the anxiety which is felt in a larger ship.

So we had a definite policy. In war, the destroyer would have constituted a blockading force to the enemy's flotilla bases. Her speed and endurance

¹ I omit the phase of "torpedo gunboats," which were the first reply to the torpedo-boat.

were sufficient to enable her thus to act. The torpedo-boats would be debarred – or at least deterred – from coming to sea and crossing the Channel by day. At or before dusk the destroyers would have put in their appearance off the enemy ports, there to remain till after dawn: it was risky for the weak torpedo craft to put to sea; and still more so to return in daylight. Operations were thus largely circumscribed.

Here, then, the adherents in the “core” theory may think they find support for their belief. But there is none. The policy would have been practicable only so long as the “enemy” refrained from building similar craft. Once vessels of the same strength should have been built by an opponent, any small divisions of British destroyers which should attempt thus to close the very numerous flotilla bases would have been confronted with at least equal, but more probably superior, numbers of French destroyers: for French sea officers are far too well acquainted with the conduct of war to let slip such opportunities as this scattered force would present to beat the British detachments in detail. We in turn must then have multiplied greatly our destroyer flotilla, or built vessels still larger. By that means we might have security: but only at an increased cost, and with increased risk. For whereas the smaller French craft could only cross the Channel with respectable risk, so that British trade proceeding along the northern shore was to some extent protected by distance, the larger and faster destroyer could cross with comparative confidence – as she can to-day.

SECTION II: SUBMARINE AND AERIAL
DEVELOPMENTS

While the truth of some of these arguments may be admitted, the objection is made – and this, I gather, is considered to be one of the most important – that an increase in size is necessary because of the development of the mine, the torpedo, and the bomb. Ships, it is said, must have thicker decks for defence against the bomb, and special underwater construction to resist the effects of the mine and torpedo.

To this the reply is that there are two ways of preventing injury. One is to add armour – static defence – so that, if hit, the injury will not disable or destroy the ship: the other is to reduce the probability of being hit at all. The former demands an increase in size: the latter a decrease.

Apart from the question of whether increase in size does confer immunity, or a higher degree of immunity,¹ let us begin by considering the matter from the strictly practical point of view – that of verification of the statement. “The assertion which outstrips evidence,” said Huxley, “is not only a blunder; it is a crime.”

In the late war the size of battleships was not considered to give security, whereas the smallness and nimbleness of destroyers and the light cruiser were definitely recognised as factors of security. It was not the battleship which defended the destroyer, but the destroyer which performed that service for the battleship. Nor, unless I

¹ This element in the question is discussed on p. 180 *et seq.*

am mistaken, is it supposed that the larger ships built since the war, with an elaborate system of under-water construction, will not be considered to require a similar defence in the future. The small vessel will still be the one which not only has no fear of the submarine, but is the definite offensive type against her. She is, in fact, the destroyer of the submarine. During the war the destroyer and light cruiser were constantly at sea in waters infested with submarines – the North Sea, the Channel, Dover Straits and the Belgian coast, the western approaches and the Mediterranean. I have been taken to task by a writer in *The Times* for speaking of the immunity enjoyed by small craft during the war, and confronted with the figures of losses of ships of all types, purporting to prove that it was among the light craft that the losses were the most numerous,¹ and asked, therefore, "How can it be said that the smaller vessels enjoyed a greater immunity than any other type?"

As the figures given were those for the losses from all causes, including the battles, they have in reality no relevance whatever to the questions at issue. That which was under discussion was not the losses from *all* causes, but whether large size or small was the better form of defence against the submarine and aircraft. When this is examined, it is found that during the fifty-two months of war the total number of vessels embodying the characteristics of small size and speed – that is, destroyers and light cruisers – lost by submarine action was

¹ The figures given were 13 battleships, 3 battle-cruisers, 14 cruisers, 13 light cruisers, 66 destroyers, and 55 submarines.

twelve¹ – four light cruisers and eight destroyers: and of those four light cruisers, two – the *Hawke* and *Pathfinder* – were operating without any precautions whatever, in the earliest days of the war before the submarine menace was properly appreciated. We are certainly not called upon to increase size because tactical precautions were omitted. We thus get a total of ten vessels lost from these causes in fifty-two months. War being a dangerous business at best, the claim that the word “immunity” in respect of submarines is justified can hardly be open to dispute. It is indeed a singular use of logic to advance in the face of these facts that the invention of the submarine has called for increases in size. The ordinary man would indeed come to precisely the opposite conclusion.

However this may be, it is urged, and if we admit that the small and nimble craft at sea possesses a better chance of safety than the mastodon, it is still impossible to reach the ideal of a navy of small vessels no larger than destroyers. The needs for seagoing endurance call for a larger size: the benefits of smallness then disappear. This, however, is not so. The difference in the size of the target offered is still a factor. So far as aircraft are concerned, a ship of some 6,500 tons will unquestionably present a target to bomb-droppers between one-third and one-fourth of that of the great ship. Will anyone claim that a 2" bull is a target as easy or easier to hit than a 6", even with an accurate weapon, which no one will pretend the bomb to be?

True as this may be for the bomb, we are told,

¹ None was lost from air action.

it is not true for the torpedo, whose target is not measured in deck area, but in length. The "cruiser" of to-day of 6,000 to 7,000 tons is, we are told, six-sevenths of the length of the "battleship" of 35,000, and this, it is said, does not represent much in the way of advantage by reduction of the target. But this presupposes that the cruiser must of necessity be so long. Why is she of such a length? In order to attain speeds which are not called for by any strategical or tactical demands.¹ Moreover, if it should be considered – possibly for tactical reasons – that a very high speed in some vessels is necessary, there remains the fact that that speed is itself a defence. Further, if vessels of this size are in danger, it is a danger we are already running, for all nations are to-day furnishing themselves with cruisers of this size, which will have to be constantly at sea in waters in which they will be exposed to this very danger. In reducing the size of all ships we are therefore not altering conditions which already exist, and which, apparently, we accept.

But once more the battleship and her immunity comes into view. Risk the cruisers, yes: the battleships – no! NO! The "battleship" must on *no* account be endangered. But if what has always happened before happens again, as von Loringhoven says that it does, and these smaller ships I am contemplating for the main battle are given greater hitting power, speed will be sacrificed: as it was, as I have shown elsewhere,² in the

¹ *Vide ante*, p. 103, where the question of speed is discussed.

² *Vide* pp. 45, 123.

differentiation between the 14,000 and 13,000 British and Russian battleships and armoured cruisers. If speed is reduced, the need for such length goes with it: and our proposed "battleship" does not present a target to the torpedo six-sevenths of the present battleship, but something far less – possibly not much more than a half or four-sevenths. Those who have some experience of the results of torpedo firing will readily appreciate the difference this makes on the probability of hits.

Finally, on this question of danger from the torpedo, the objection is made that the ships in line of battle will occupy no less a proportion of space "in the line" if they are smaller. Thus there will still be a long line of battle, so much per cent. of it "ship," so much per cent. "gaps" between ships. Size, therefore, it is argued, makes no difference, and reduction affords no defence against the modern long-ranged torpedo, fired into the "brown" of the long line.

The tactically minded man, with Solebay, Trafalgar, and Tsushima in his recollection,¹ will ask, in reply to this, "Is there any obligation, inherent to sea fighting, to dispose the ships of a fleet in one long line?" There have been some not undistinguished naval commanders who have not only disputed this necessity, but have roundly condemned it – and that even in those days when sail alone, with its limitation upon movement, was the propelling medium. Admiral Sturdee made the following remark to a flag officer: "Had

¹ In which the victors fought in squadrons or divisions.

I had a wing position at Jutland I should have disobeyed the single line forming signal and led my squadron round to the other side of the Germans. . . . If you wish to destroy your enemy, you must put a net about him." Is it not the very essence of the art of warfare to dispose and manœuvre one's forces in accordance with circumstances? Among which circumstances is the development of new weapons. When the principal weapon of the ship was the ram, or the single keel-aligned gun in the bows, as it was in the galley types, and when the oar afforded freedom of movement, tactics took the form suited to the most effective employment of those weapons. The fleet operated in squadrons which aimed at crushing some part of the enemy, manœuvring in separate bodies though in conformity with a general idea: and the formation was in line abreast. Changes in the disposition of the offensive instrument from the bow to the broadside brought about the line ahead, which was subjected to modifications, according to the conceptions of fighting and command held by different sea-commanders. The line of battle, in fact, had as its objects two things – the development of the greatest volume of fire and the maintenance of cohesion. Although it was found to be a difficult formation in which to retain cohesion in attack, it was maintained: but a belief grew up that the tactical object in battle was not so much to defeat the enemy as to maintain the line of battle.¹ From being a means of defeating the enemy, it passed to a means of preservation from

¹ *Vide* Admiral Lestock's paper on the battle of Toulon, 1744.

defeat. It was discarded by those great masters of fighting, Nelson, Suffren, and Togo.

Thus experience corroborates reason in support of the belief that there is nothing fundamental in a single line of battle; and that if other formations offer greater prospects of developing the offensive power of a body of ships, combined with no less – or even more – security, tactical freedom so to act is indispensable; while to base the size of a ship, *inter alia*, upon the irrevocability of a certain tactical formation is a proceeding which should not be attempted outside Cloud-cuckooland.

Still further, the objection is made that aircraft, attacking at their very high speed, can approach with safety to so close a position before dropping their bombs or torpedoes that in reality the smallness of the target does not matter. It is argued that they can be so sure of a hit, even on the 2" bull, that the only way to prevent this lies in an adequate anti-aerial armament, and that it is not possible to provide the small vessel with so numerous an armament as a larger one. This presupposes that the smaller ship cannot be given an armament sufficient for her defence. But is not the necessary amount of armament largely proportional to the size? The 6,000-ton German *Köln* class is armed with four anti-aerial guns. Some of the 10,000-ton cruisers appear to have no more guns, though those they have are of larger calibre. The latest great battleships appear on an average to mount eight – twice as many. But the target they have to defend is nearly four times as great. Much dialectics could undoubtedly be

expended upon this subject, but if there be, as surely there is, some relation between the armament and the target it has to defend, it would seem that, relatively to her size, the small cruiser or battleship is as well defended as the larger ships.

Granting that small size and manœuvrability confer a certain degree of security when the ship is at sea, those who oppose reduction in size assert that these advantages disappear when the ship is in harbour: and attacks upon ships in harbour are practicable under present conditions. Without admitting that a relation exists between the armament and the size of the target, it may be conceded that a smaller armament is justified in virtue of those other factors of speed and manœuvrability. This, however, is effective only when the ship is under way. In harbour she will be dependent solely on her anti-aerial batteries; and these alone are not enough. Hence provision must be made to mitigate the results if she is hit: and this can be done only by the adoption of methods of construction which oblige a great increase in size.

In considering this objection, let it be considered what principles have governed the defence of ships in harbour against other forms of attack – attack by fireships, by superior forces, by surface and submarine torpedo craft. In each case the defence has been external to the ship – booms, breakwaters, artillery, nets, mines. The ship has never been expected to furnish her own defence. If she has had to use a base where she is within the range of potential attack, a system of defences has been erected to afford security: as we saw

done at the Elliott Islands by the Japanese fleet, and at the numerous bases used by the British and other fleets, squadrons, and flotillas in the recent war. It is by such *external* means that defence must be provided, not by loading the fighting ship with extra weapons. Not only is this necessary, but a more efficient control is possible by a shore system of anti-aerial defence than by the units of a fleet, lacking as they may be – and probably would be – in a system of communication as effective as it can be in a shore-based system.

This, however, is not all. To consider only the “battleships” is to take a very incomplete view of the needs of a base. A base does not merely contain the battle fleet. It contains also the cruisers and the flotilla – which by our critic’s hypothesis cannot be armed sufficiently to afford them security – and the mass of auxiliary vessels for whose accommodation, no less than for that of the fighting ships, the base exists – fuellers, ammunition vessels, store ships, possibly a floating dock; not to mention any organisations that may exist on shore – the storehouses of a regular base or the temporary buildings of an extemporised one. These no less than the ships in the anchorage need defence: and a system of anti-aerial defence would in any case therefore have to be erected. Moreover, it is necessary to recollect that ships may be attacked in harbour after battle; how Admiral Togo, for example, would have welcomed the possession of a means of following up the battle of August 10th with a torpedo attack on

the Russian fleet, when, seriously damaged, it had succeeded in regaining Port Arthur! Those ships would have been in but a poor way to defend themselves: they would have needed something more than what would have remained of their anti-aerial armament. Finally, when the fleet is at sea, the auxiliary ships – the “train” of the fleet – cannot be left undefended and exposed to destruction. Shore defences must exist for their security.

Thus the proper defence of the base – which means the defence of that which the base shelters – demands in any case an adequate armament independent of the battleships. The requirements of defence in harbour, in fact, afford no more justification for the existence of great ships than do the requirements at sea.

It has also been objected that it is undesirable to limit the size of the ship when it is impossible to limit the size of the bomb, the torpedo, or the mine. These may grow, and to make the ship secure she also must not be limited.

This, however, proceeds upon the unproved assumption that size is the only method of giving security; which I contend with the utmost vigour that it is not. If we follow such an argument to its ultimate conclusion, we never stop growth. In due time the complaint will be made that these instruments have become so powerful that even the 35,000-ton ship is not large enough to resist them. We have a repetition of the played-out drama of the battle between guns and armour: a contest which can end only in one way: though the

ship increases vastly in size, the missile ultimately wins.

I contend that the merely mechanical and very costly process of increasing static defence is wrong in principle; the more sagacious way of meeting new dangers lies in new methods of employment based on the general principle of reducing the chances of being hit. The chances themselves are small, as we see if we take the tale of ships sunk by torpedoes in action. By increasing size we increase the probability of being hit. I can discover no sense whatever in such a method.

Moreover, let it be remarked that as we increase the size of the ship, so the size of the torpedo or bomb increases. There may be those who hope that they will reach such a size as to be beyond the carrying power of aircraft. This I look on as a vain and unfounded expectation. But wherein can we discover the workings of common sense in the adoption of a method of security which necessarily leads to an increase in the danger? It resembles the singular action of a Minister who, having made the speed of a car an offence, proposes, if the law is broken, to reduce the statutory speed, and thus increase the offence.

SECTION III: THE "LAW OF NATURAL GROWTH"

But this growth, we are told, is a law of nature: on all hands we see this "law" in operation. Sky-scrapers and *Mauretania*s appear: the cruiser of 3,000 tons of 1913 develops into her of 9,500 tons

in 1918; the galley grew into the trireme, the ships of Drake grew into those of Blake, those of Blake into Hawke's, then Hawke's into Nelson's, Nelson's into Sir Charles Napier's, and the early ironclad of a few thousand tons into the 27,000-ton ships of the late war. A demand, too, is continually made for the inclusion in ships of all the new inventions – and luxuries – that are the outcome of modern conditions.

The view that, because houses or liners have become larger than they used to be, so must fighting ships do the same, fails wholly to take into account the essential factors of function and the conditions causing growth. The skyscraper came into existence simply because of the cost of land in restricted town sites. More accommodation was needed, and, as limitations of ground space did not permit expansion outwards, it had to take place in the only other possible direction – upwards. The growth of the great liners was merely the outcome of competition in offering the greatest speed or the highest degrees of comfort to the wealthy travellers across the Atlantic. If the growth were a "law of nature," inevitable and ruthless, inseparable from the conduct of mercantile traffic, we should see ships similar to the *Bremen* being built for the Indian and Eastern trades. The Suez Canal would have – inevitably – to be deepened. But this does not occur. And why? Because it is not necessary; because that which is needed to be done can be done without increase of size and cost.

The growth of the small cruiser is similarly quoted as a natural – that it to say an inevitable

— and necessary process. It is perfectly correct to say that the growth quoted between 1913 and 1918 *did* take place: but the fact that growth took place constitutes no proof whatever that it was necessary that it should have done so, any more than it proves that the building of the monster light cruisers of the *Furious* class was necessary, or wise: which we know it was not. It might become necessary to build larger cruisers if an opponent were building them, but that is a wholly different matter. It answers to no "law of nature" except that of self-defence. It is purely a matter of competition. The world was no larger nor the sea any rougher in 1918 than in 1913, and no need existed for greater size to meet changed conditions of combat or navigation. War was the same as it had been before — a business of fighting and overcoming an enemy. The growth, in so far as it was not due to competition, was due to an increasing belief in, and demands for, material superiority and nothing more: and it has now culminated in the 10,000-ton cruiser, and in the belief, accepted by many otherwise sagacious persons, that it is a physical impossibility for a cruiser to do what she is called upon to do unless she be of that size.

If this law of nature be really a law, are we already not deliberately transgressing this natural law in setting a limit of even 10,000 tons on a cruiser, or 35,000 upon a battleship? For surely the law must apply in its turn to them as it has to its predecessors? Yet this self-imposed limitation has not been criticised on the basis of a natural law of increasing size."

SECTION IV: POLITICAL AND NAVAL
STABILITY

But great size, we are assured, is necessary in order that there shall be "political stability." The objection is made that the smaller the ship the more cheaply she can be built. We should have supposed that, when economy is one of the assigned reasons for reduction in armaments, this would have been an advantage. But no: surprising as it may seem, we are told that it is a disadvantage, for the reason that if nations were restricted to "very small" ships it would be easier to upset any international agreement as regards numbers. Nations which cannot afford the largest type could afford these smaller vessels, the "balance of sea-power" would be upset, and unrest would be caused. But so long as only the Big Five continue to build the six or more million pound mastodons, none of them — or others — can suddenly add to their fleets in peace: and this, we are solemnly assured, will give time for diplomacy to work when a critical situation arises. Whereas if it were possible for a nation to make good any seeming disparity between her fleet and that of a rival "in a matter of months instead of years, there might [observe the "might"] be a greater danger of plunging into hostilities." To reduce size is, therefore, by these processes of reasoning, to imperil the general peace.

This is not a caricature of the reasoning that

has been advanced, in all seriousness, against the reduction of the size of the ship.¹

Let us examine this argument and take these objections separately. If ships are small, international agreements can more easily be upset. Are we then to understand that the international agreements regarding the lighter cruisers and the destroyers are therefore liable to be upset? If so, we have all been unwise to conclude them: for our rivals may easily depart from them, and we are already exposed to the very danger supposed only to arise if the largest ships are reduced in size. Why, however, if a nation has agreed to build – say – 10 “battleships,” she should be expected more readily to break her word and an international treaty by building – say – 15, when the tonnage is smaller, I find it difficult to discover. Inasmuch as by laying such ships down she would promptly be met with remonstrances from all her co-signatories, whether the ships be large or small, and as the result of her paying no heed to those remonstrances will provoke action in some form on the part of those Powers, whatever the size of the ship, there seems no reason whatever to suppose that the size affects the question at all. For

¹ *Quarterly Review*, April 1930. A very curious admonition to myself occurs in this anonymous paper, inferring that one who is not in “a responsible position” is not entitled to express an opinion. If this were so, no opinion could ever be published: for an officer on full pay is forbidden by Regulation, and (*pace the Quarterly Reviewer*) an officer on half pay is “irresponsible” and should not do so. In which case, in which category does he stand himself? He may either be an official, in which case he is transgressing the Regulations (unless writing “to order”), or he is equally without responsibility: in which case, I would ask, is it only correct for one “without responsibility” to write when he supports official opinion? This has not been the view of many distinguished officers in the past.

no sooner does Power A break the treaty by building larger ships than other Powers proceed to do the same, and the treaty-breaker gains nothing. All that will happen is increased expenditure to all, including the original treaty-breaker.

But nations which cannot afford the large ships of to-day of 35,000 tons or thereabouts can afford the small ones, and this is liable to disturb the balance of sea power. Is it? What does experience indicate? What actually happened when ships *were* smaller, when battleships were of 6,000, 8,000, 9,000, or 10,000 tons, as they were in the 'eighties? Did we then see the "smaller nations" competing in battleships? We did not. Is there any historical evidence of unrest having occurred from this course? There is none. Again, the cruisers of those days were small enough – corvettes and, later, second-class cruisers of under 3,000 tons. Any nation could build them, and they were built: but to no extent that constituted competition. No unrest took place then. It is surely astonishing that, with the means of testing theory so close at hand, with the means of verification at our very elbow, this extraordinary reasoning should find the light.

In the past our robuster ancestors did not think on these nervous lines. Although the Venetian and the Dane, the Neapolitan and the Portuguese – even the Turk, the Mysorean, and the ruler of Muskat – could build his ships of the size of ours of the line, it caused none of this modern anxiety. Neither one nor two "battleships" make a fleet. It is certainly possible that

these small contingents might be joined to the battle fleet of another Power; but the additional strength thus given must not be measured in arithmetical terms. Every experienced man knows the difficulty of tactical co-operation in fleet work. Conditions have not so altered that a modern commander would not say with Admiral Duncan, when it was proposed that his squadron should be reinforced by Russian ships to make it equal to the Dutch, "A combined fleet are not of the consequence they appear, particularly when they do not understand one another's signals, and so voluminous are our signals now that they are not well comprehended in a short time, and every day's experience shows that allies are not to be depended on or trusted."¹

The opposition to the reduction of the size of the larger vessels from this standpoint omits further to take into consideration that "battleships" are not the only units in naval strength. This balance of naval strength for which such anxiety is implied may be thrown out by other craft. Cruisers, torpedo craft of all kinds, both surface and submarine, are already possessed by the smaller Powers, and, if they desire to throw in their lot with one or other of the belligerent nations, they already possess the means of influencing the situation. It is idle to imagine that the greater maritime Powers secure themselves in their superiority by building great ships which the lesser Powers cannot afford. Could, for example,

¹ Duncan to Lord Spencer, August 9, 1795. If signals were "voluminous" then, what are they now?

either Italy or France, supposing each to possess the largest battleships, be unaffected by an accession to the strength of either of a numerous (if efficient) Greek, Turkish, or Yugo-Slav flotilla?

In my earlier chapters I have indicated in broad outline the sort of figures which, under a return to the old and well-tried policy of the "Two Power Standard," we should possess of these smaller battleships. Neither we nor any other of the maritime Powers would be in any more danger of the "lesser" nations who cannot now afford the large ships (any more than we can ourselves) than were we or they or their predecessors in former days.

Next, the existence of the large ship is said to "afford time for diplomacy to work." I am bound to assume that this is put forward seriously, hard though it is to believe it. We are to imagine that if ships of about 6,500 tons were the largest, a nation – presumably at a time of a national crisis – could "make good a seeming disparity" in a matter of months. How many months does it take to build a ship of 6,500 tons, to arm and equip her? I do not know what the minimum time for building such ships would be, but I venture to think they would be produced with very exceptional speed if they were fit for the service "in the line" or battle formation in two years. Would diplomacy have no time to work in that time? And if this frantic shipbuilding should take place, would either the threatened nation or the other nations of the world be unaware of it, and unable, or unwilling, themselves to take action? For

building cannot be concealed. Assuredly, no greater bogey to frighten the taxpayer was ever set up on a weaker pedestal than this.

I would go so far as to suggest that, in this question of increasing the danger of plunging into hostilities, the precise reverse is the more probable result from reductions in size. Unable to solve the strategical problems by merely calling on the taxpayer to furnish more money to build bigger ships – which has been the course pursued in this country hitherto – the various Naval Boards of the period will be obliged to give more real study to the problems of defence with the smaller instruments. I would suggest that there is less danger of war when its full responsibilities, difficulties, and reactions are scientifically explored than when they are not. I do not pretend to attach any great importance to this, for the determinations as to peace and war do not rest with the seaman: but even the statesmen may be induced to copy their predecessors and acquaint themselves with some of the elements concerning defence.

But, even if this building should not take place in peace, some officers appear to fear that if the principal units were reduced it would permit a nation when actually at war to produce larger ships, and thus upset the balance.

We are thus to suppose that there would be a danger that an enemy, numerically inferior, could suddenly redress the balance by producing larger ships after war has begun; and that this danger is so great that in the years of peace we must all

continue to construct vast ships of such a size that it is not possible by these means to place a maritime Power in danger.

If we are to imagine that this might happen, let it be considered just how large such a ship must be to produce decisive results. The "capital" ship visualised is one of about 6,500 tons: and there is, by hypothesis, a numerical gap of several ships to bridge over. Without attempting to dogmatise, the opinion may be expressed that the supposed disturber of the balance would need to be of not less than 10,000 tons.¹ Such a ship would not make her appearance as an efficient, or even an effective, fighting unit before two years should have elapsed. It is certainly possible that a nation going to war may on the outbreak, or at some later period, proceed to devote its energies towards the construction of units which at the earliest cannot play a part in the war before the lapse of this period. Wars may well last longer than that. But, although there have been these very rare instances, such as the great Korean fighting ship of the fifteenth century and the *Merrimac*, in which vessels, rapidly built, overwhelmingly powerful in comparison with existing vessels, were able to produce far-reaching results, one ship cannot be counted upon to win a war, even by the most materially minded persons. It would need the construction of more than one or two such ships to produce this disturbance of the balance.

¹ Obviously, a very low estimate. Probably the figure would be nearer 15,000 tons.

I do not deny the possibility that a number of ships might be built: but I hold that there is at least an equal, and in my opinion a greater, probability that it is not by such means, the effect of which can only be produced after so considerable a lapse of time, that a nation at war would endeavour to redress a discrepancy in sea force. It is rather to the production of numbers of smaller vessels, which can more rapidly influence the situation, that a nation would direct its efforts.

It is, moreover, to be observed that the danger, if danger it be, that a power at war will build ships larger than those provided for by treaty in peace already exists. Nothing can prevent a nation producing battleships larger than 35,000 tons, cruisers larger than 10,000, or lesser craft larger than those provided for in the treaty.

The whole question in reality is whether the risk that an enemy would be able, and would decide, to endeavour to alter materially the proportional strength in war by an increase in the size of its largest vessels, is such as to justify the increase in the cost of ships from some £2 millions – possibly less – per unit, to some £9 millions – or possibly more. For my part, I can discover no reason for thinking that the risk justifies in any degree whatever the expense to which all the maritime nations of the world would be put throughout the many years during which we may reasonably hope peace to endure.

SECTION V: POWER TO TAKE PUNISHMENT

Yet another objection is raised on the score that a "battleship" must be able to stand punishment. Is this need peculiar to a single type of ship? Are not all ships, down to the flotilla classes, fighting ships? And is not the characteristic of a fighting ship, whether she is one that fights in large bodies or small, that of giving, and therefore necessarily of receiving, from her opponent, hard blows? Hitherto there has never been a special differentiation—it never was supposed that the capacity to receive blows as well as to give them was confined to the biggest types of ship.

The implication, from stressing the intrinsic need of standing punishment in "battleships," appears to be that only one particular body of ships fights "battles": and that while it is essential that the units of this particular concentration of force shall be able to withstand the blows of their opponents, it is not material that any other vessels should possess that power.

What, then, is a "battle"? Or, to put it otherwise, when is a battle not a battle? Are the only "battles" which matter those which are fought in some particular concentration called the "main" or the "grand" fleet? Was it only those forces in the Bay of Biscay, the Mediterranean, or the North Sea that fought "battles"? Are those engagements between detached forces, such as Hoste's action off Lissa, Louis's at Trinidad,

Dewey's at Manila, Sturdee's at the Falkland Islands, or Suffren's off the Coromandel coast, not "battles"?

The destruction of its main body of sea fighting forces will in all probability mean the loss of command in a vital area: and to some nations, nations quickly susceptible to pressure in that area, this will be synonymous to national defeat; to others it may be an important contribution to defeat, though not in itself decisive: for the nation may still possess sufficient resisting power on land. But, because this is so, the converse does not follow. While the defeat of the main body may mean disaster, the mere preservation of the main fleet does not avert disaster. The reason for this is simple and plain to the eyes. A nation may be vulnerable in more places than one, and the main fleet may be unable to afford security to interests in one or other of these other places.

Consider what experience has to tell us in this matter. In the War of the American Revolution we had a great fleet in home waters and another in the West Indies. These were undefeated. We had, however, to meet a most determined attack on India by a squadron and an army. The defeat of the British squadron would have spelled the defeat of the British army in India; and, with that, the loss either of India or of a large portion of India. If Hughes had been beaten by Suffren in the first of his five battles, the Indian trade would have stopped. The stoppage of this trade, combined with the losses in the American and in the West Indian trades, might have forced this

country earlier to a peace of an even more humiliating nature than that of 1783. Such was in any case the expectation of French Ministers and generals and of their capable naval commander, Suffren. The fate of a detached squadron of cruisers – for that is what, in modern terms, those Franco-British squadrons of two deckers in the East Indies would be to-day – would have decided the fate of England, though her “battle fleet” remained intact. Why, one may ask, should it be less essential that ships liable to be engaged upon an operation in outer seas, the result of which may be decisive, should be less capable of taking punishment from each other than ships engaged upon another vital operation elsewhere?

Again, suppose the fate of a campaign, and of the possessions in a particular theatre, to depend upon the reinforcement of a base – as the fate of the campaign of 1782 depended upon Trincomali being reinforced: and that success or failure to do this in time depended – as it then did – upon the “cruiser” forces immediately available in that area. Would not the “battle” between those “cruisers” be of primary importance? Since we are told that no ship less than the prodigious battleships we now build can take the punishment she may be called upon to take in battle, it follows that cruiser forces could not be fit for this purpose: and we reach the truly remarkable conclusion that ships of less than some enormous tonnage like 30,000 tons cannot fight each other.

We do not, however, need to go back to the eighteenth century for illustrations of the fallacy

that so long as a certain main body is composed of unsinkable ships the country is secure; for we have as striking an instance to the contrary within our own personal recollection. We had an undefeated main body of ships, designed to take punishment, in 1917. The enemy concentrated his efforts elsewhere, and came very near – so near as to cause some high officers in 1917 to say that we could not last out beyond the October of that year – to causing our defeat and downfall by the destruction of our communications, without which we could not continue to fight.¹

Thus, to take the three premisses – first, that one particular type of ship fights “battles,” and is hence a “battleship”; second, that this type must be made secure against injury to a degree which is unnecessary in other ships; and third, that the security of the units of this type ensures the security of the country – the first and second are not true and the third is only contingently true. Its truth depends entirely upon circumstances. It may be true in some circumstances; in others it certainly will not; and therefore it is not a universal truth upon which any valid theory of reduction of armaments – which must be applicable to all nations – can be based.

This brings us to another aspect of the matter of the first importance. Are we sure of the correctness of the very premiss itself on which this rests – namely, that increase in size increases the

¹ Cf. p. 94. So the Russian destroyers in the Caspian Sea were rendered unable to fight by the destruction of their communications – the colliers – without whose fuel they were nothing but steel structures lying in harbour.

capacity to take punishment from a similar opponent? To take a prize-ring analogy, is a heavy-weight in the ring more capable of taking a punishment from his opponent than a light-weight from his?

Let it be clear that it is to the taking of punishment from a like opponent that enquiry is now being directed – “battleship” against “battleship.” If any two bodies of “battleships” of equal unit size fight each other, will the respective squadrons be able to stand more injury from each other if they are of 30,000 or 6,000 tons? The question of whether a ship may be rendered less liable to disablement by mine, bomb, or torpedo, if more tonnage is allowed for her construction is not now under examination; nor whether, if that be a method of increasing her security against those agencies of destruction, it is a better or a worse method of obtaining security than any other. There are many. Rendering her less liable to be hit by making her smaller; giving her a higher speed, greater manœuvring power, or more anti-aircraft artillery; adopting tactical formations which reduce the possibility of “browning.” All of these are discussed elsewhere. The question here is confined to defence against the artillery fire of a ship of the same size; and that defence is, obviously, only defence in its static form.

Statistics are notoriously capable of many interpretations, and I, who have no official information of the number of hits made upon vessels in the naval engagements of the period which covers the “modern” ship, cannot pretend

to have made so exhaustive, so complete an analysis as the scientific use of evidence demands for the purpose of the test of a theory. Such, however, as I have, establishes, to put it no higher, a *prima facie* case against the belief that increases in size increase the power to resist injury—from an opponent of the same type: and justify a claim for enquiry in what would be regarded as a scientific method in any other branch of research.

Whatever the theorists who support either view of the question in dispute may advance in favour of their opinions, theory it will be and nothing more. Theory, to have any value, must be based upon an examination of facts, and an independent judge, listening to the special pleading of the counsel for each party, would surely ask, "What has experience to tell us in this matter?"

During the last forty years several engagements have taken place between vessels of war. Can we discover, in the results of these engagements, definite proof that the larger the ship the more punishment she stands from her like, armed with like weapons? Put in terms of quantity, this question is, "Does she survive more blows from the weapons which the increase in size has enabled her—and her opponent—to mount?"

Let us first take the largest ships. In the battle of Jutland, the German *Lützow*, a completely new ship of some 25,000 tons, was hit about twenty four times.¹ She was so much damaged by two diving hits that she was abandoned and sunk:*

¹ The figure given by the German authorities.

and it is to be noted that this injury was done by those "inefficient" British shells so much complained of, with which an Administration dominated by views of material had furnished the Fleet: from which it may be deduced that if the shell had been efficient a smaller number of hits would have produced the same result. The *Derfflinger* received seventeen hits, the *Seydlitz* twenty-one, and one torpedo; both were disabled. The *König*, *Grosser Kurfürst*, and *Markgraf* were hit respectively ten, eight, and five times; and it has been claimed by a high artillery expert that if our shell had been efficient these three battle-ships, and also the two battle-cruisers, would have been sunk. Another expert remarks, "The *König*, though unmercifully pounded, remained afloat. If the shell had been efficient, they [he is speaking also of the battle-cruisers] would infallibly have been sunk."¹ Thus ten hits is an "unmerciful pounding" which these immense ships cannot be expected to stand, and even eight, or five, would have been sufficient to destroy them. This does not represent a very high degree of taking punishment.

Turning to the British ships, the *Invincible*, *Indefatigable*, and *Queen Mary*, of from 17,250 to 26,000 tons, were hit, apparently, by about five shells each; they were all destroyed. Lucky hits? Certainly. But lucky hits occur in all wars, and size had not proved a prophylactic to those three ships. Again, the *Warspite*, of 27,500 tons, was hit

¹ *Journal of the Royal United Service Institution*, February 1930, p. 66.

about sixteen times. She returned to harbour out of action.

Going back a few years, when ships were smaller, the *Tsarevitch*, of 13,000 tons, was hit, at the battle of August 10, 1904, not less than fifteen times by heavy shot, and several times by 6" and 8". She survived. I have no information on the precise number of hits received by the other ships – the *Retvisan* and *Peresvyet*, of about the same tonnage – but published accounts of the battle state that the *Peresvyet* was hit by not less than fifteen, probably more, heavy shell, besides a large number of lighter projectiles. Yet all these 13,000-ton ships returned to harbour. None suffered the fate of the 25,000-ton *Lützow* or the British battle-cruisers; and they withstood at least as many heavy blows as those which caused the *Warspite*, of almost exactly double their size, to quit the fleet and return to harbour, and more than the number calculated to be decisive in the case of the three great German ships.

The armoured cruiser of 1905 showed as good a proportional resisting power. The *Gromoboi* and *Rossiia* (13,320 tons and 13,605 tons),¹ in their engagement with Admiral Kamimura's armoured cruiser squadron of ships of a similar type of artillery – viz. combined 8" and 6" armaments – were hit thirty-one and twenty-six times respectively. They survived and escaped. To come to more recent examples of the armoured cruiser in

¹ The error of the common belief that the differentiation between the "battleship" and "cruiser" is a matter of tonnage is illustrated in these ships. The "cruisers," it will be seen, were actually of greater tonnage than the "battleships." See also pp. 45, 123.

battle, the 11,000 ton ships of Von Spee at the Falkland Islands took punishment which compares well with that received by the larger battleships at the battles of August 10, Tsushima and Jutland.

Passing to smaller vessels, the *Askold*, of about 6,000 tons, was hit, on August 10, 1904, not less than sixteen times by *heavy* artillery—artillery heavier than her own—and a great number of times by lighter artillery. She survived. In the late war, at Jutland, the *Southampton* was hit eighteen times, the *Chester* seventeen; and in the Heligoland Bight engagement the *Fearless* was hit over twenty times. By how many shot from weapons of a calibre larger than her own the *Emden* (3,592 tons) was hit by the *Sydney* (5,400 tons) before she was disabled I do not know, but it is at least probable that the number was not less than that which sunk the great *Lützow* or the 13,000 ton battleships of the Russian fleet in the battle of Tsushima.

What, then, do we see in all this? *Prima facie* the conclusion is that whatever the size of the ship, she will stand approximately the same amount of punishment from her own type, from the ship of her own class, the larger ships standing rather less than the smaller: and that it is a fallacy to imagine that by increasing size we are, as we suppose ourselves to be doing, increasing her capacity to take punishment in battle against her like. This, I say, is the apparent conclusion from the figures given: and restricted, or even susceptible to correction as

these figures may be, it is surely undeniable that when several hundreds of millions of the public money of all nations is at issue, we should make such an investigation of this subject as will ensure that, so far as this technical aspect is concerned, we are not being led away by mere prejudice, preconceptions, or dogmas. Admittedly it is not easy for those who look at one of these great ships not to be impressed by her appearance of strength, not to form the opinion that she must be a tougher nut to crack than a ship of one-seventh of her size, comparatively unarmoured and flimsy. But if science has simultaneously increased the power of the nut-crackers as fast as, or even faster than the increase in strength and size of the existing nut—that being indeed at least one reason for that increase—the balance between attacking power and static capacity to resist remains unchanged; or, if it has changed, it is to the detriment of the larger ship, for the record of the smaller is better. All that has been done by those who seek security in this way is to waste each other's money in seeking an unattainable object; which, if not the height of foolishness, is at least perilously near to it.

SECTION VI: THE ARMED MERCHANT SHIP

One of the outstanding objections made to a reduction of the "cruiser" to a tonnage below 10,000 tons is that a smaller ship would not possess the "unquestioned superiority" over an armed merchant ship that is said to be necessary.

Before dealing with the precise terms of this

objection, it is necessary to call attention to the fact that under the present Treaty no nation proposes that all its cruisers shall be of 10,000 tons. The numbers of vessels of that size agreed upon between England, America, and Japan form a proportion only of their cruiser forces: and those numbers are too small to ensure that wherever the supposed armed merchantman should make her appearance she would be confronted by one of the larger cruisers. This is so obvious a fact to all who have even an elementary acquaintance with the problem of trade defence that by itself it is sufficient to dispose of this objection; or, if the objection be valid, to convict those responsible for the agreement of having provided their nations with insufficient ships capable of performing one of the very services for which they are provided.

The objection to smaller cruisers on this count of tackling the marauding armed vessel takes many forms. The merchant vessel may mount 6" guns, which is, normally, the largest gun with which the majority of those vessels can conveniently be armed. Hence, it is argued, the vessel whose duty it is to deal with her must be armed with something larger: and the "something" demanded is an 8" gun – a gun firing a 240 lb. shot against the 100-pounder of the 6" gun.

Now I do not suppose for a moment that if any officer were told that an enemy cruiser, armed with 6" guns, was cruising in the Channel approaches, the offing of Marseilles, or the area of Cape Hatteras, and that he was to be sent in

search of her, or to escort trade through that area, in a cruiser also mounting nothing larger than 6" guns, he would object that he was being given too heavy or dangerous a task, supposing that his guns were no less or not much less, numerous than those of the enemy. Certainly such an idea never entered into the heads of our predecessors. It never was imagined that a 38-gun or 44-gun frigate must be sent to deal with a 30 or a 32. If such had been the custom, such the measure of the courage, of the seamen of all nations of the past, we should never have heard of that brilliant series of frigate actions which adorns naval history. Yet for some reason it is supposed to-day that when these same 6" guns are mounted in a weak, inflammable, vulnerable merchant ship, a ship offering a target vastly in excess of the man-of-war, the cruiser sent to deal with her must have guns of over 300 per cent. of hitting power – for that is approximately the relative energy of the respective projectiles.

Again, pictures are drawn of great ocean liners capable of making over 21 knots, even in rough weather, infesting the trade routes. It is not without relevance, if we are to consider this as a practical question, to turn back to the world figures of ships of this size at the present date. They are:—United Kingdom, 25; United Italy, 5; France, 5; Italy, 3; Germany, 2.

Thus we are told to picture these ships being sent out to prey upon commerce – these few, very large, very costly ships. If the late war afforded us any lessons, it showed that neither the superior

nor the inferior combatant at sea considered these ships of utility as cruisers. We ourselves (and this is a very old lesson, though one constantly forgotten) do not depend upon the use of sporadic warfare in our strategical problem at sea. Our merchant ships are wanted for wholly different purposes.

But, we are told, a nation inferior at sea might so use hers – her five, her three, or her two. What does experience suggest in this matter? The proposition is that a Power possessing these ships will send them out either as fighting ships or to trade. Is there any recent evidence to assist us to form an opinion on the question of probability?

What happens in war – and of this there is ample evidence – is that if the risk of sailing becomes unduly high, merchant shipping will not sail, whether the ships be fast or slow. So soon, in the wars of the past, as superiority was established at sea, enemy trade in its own bottoms kept in harbour, except for such coastal or occasional oceanic voyages as might surreptitiously be made. The late war told the same tale. Even British shipping companies at the outbreak of war were inclined to run those of their ships that were abroad to the nearest neutral port and keep them there: an act which the National Insurance scheme, followed by evidence of the comparative safety afforded by the cruisers of the navy, averted. But the enemy ships laid themselves up from the beginning and remained laid up. Fifty-four German ships, including the 24-knot *Vaterland*, two 23½-knot ships, the 19 knot *George Washington*, tied

themselves up in American harbours: 30 ships lay throughout the war in Lisbon. The careers of the *Cap Trafalgar* (18,710 tons), the *Kronprinz Wilhelm* (14,908 tons), the *Eitel Friedrich*, afford no encouragement for the use of great and costly vessels in sporadic warfare. *Möwes* and *Wolfs* – ships of comparatively small size and little value – can be produced in greater numbers and do far more work at a less cost: and they are more easy to maintain.

I will not deny that it is within the bounds of possibility that a Power possessing the very few of these ships which, as the table above shows, are possessed by the principal maritime Powers – and by no one else – might differ from these views: and that casting aside the lessons of experience, as nations – ourselves in particular – are prone to do, might think it worth while to arm these two or three ships with numerous 6" guns: indeed, I do not reject the possibility, improbable though I consider it, that such vessels might even mount heavier guns. But I certainly deny that this affords grounds for anxiety on the part of any Power. I assert with confidence that the danger, if danger there really be, that a merchant vessel can be transformed into a really effective fighting unit, is too remote to afford any justification for asking the taxpayer to pour out his money in cruisers of 10,000 tons to deal with them. Even if what I deem improbable should occur, I have no doubt whatever that cruisers no larger and more powerfully armed than the *Köln*, and of a less speed, would amply

serve to defend the national shipping against such ships, provided, always, there were enough of them – a qualification which applies equally to ships of a larger size. If sporadic attack be undertaken, whether it be made by armed 21 knot liners or 10 knot tramps, the trade, in some areas, would require defence by convoy or cruising: and the armed vessel in question has to overcome the guardian of the trade, the escorting or patrolling men-of-war, before she can do injury. What armament must such an attacker possess? If she is armed with 6" guns, at the least she must certainly have as many as the broadside or the cruiser in order to possess mere arithmetical equality in artillery. If she is to be armed with 8" guns, I imagine she would not require less than four; and I can conceive that those who have to take such a ship to sea, with the certain prospect of having to fight such a cruiser as I have suggested, with 6" guns, would hardly be content with either of those numbers, but would require more. For they must take into consideration not only her armament, but the ship's fighting capacity. They will see that the target their ship will offer to the enemy is far greater, and therefore more liable to be hit, than that of the enemy. They will consider their liability to fire, their danger from water-line hits, and the exposure of their machinery. Against which they have only to set that they will probably be better gun platforms in rough weather; and this is a small consideration, for weather is not always rough. Æolus cannot be called up as an ally wherever danger threatens.

I am aware that, never having served in the constructive department of the Controller, nor having been concerned with the production of material, I am not competent to express an opinion upon the possibilities of mounting 8" guns in merchant ships. But as there is no word to which I take greater exception than the word "impossible," I am prepared to accept the possibility that a hypothetical giant raider can be mounted with six, even eight, of the large power-worked 8" guns. I must, however, confess that I should not be much worried by his so misdirecting his efforts. Even if an enemy should decide so to employ his resources, and if, further (a possibility, true, that one can only regard as so remote as to demand an apology for suggesting it), naval officers should be afraid to meet an enemy so armed, there is not the smallest doubt in the world that two small cruisers (say, two *Kölns*) would be more than a match for her. Indeed, I think I shall find agreement among many flotilla officers that even the largest merchant vessel, armed with as many 8" guns as it is possible to mount, would stand a poor chance if attacked by a brace of flotilla leaders of the *Vauban* class, mounting between them ten 5.5" guns.

Taking all these matters of possibility and probability into consideration, I can discover no adequate grounds, on the score of the armed merchantman, for naval officers to insist that they should be provided with cruisers of 10,000 tons in size, armed with 8" guns. To my mind, such a demand indicates not only strategical,

tactical, and technical misconceptions of the problems of trade defence, but a spirit which promises very ill for the fierce drama of war.

SECTION VII: AIRCRAFT CARRIERS

The reduction of the fighting ship to something under 7,000 tons would necessarily apply to aircraft carriers: for reduction would not be affected by the armament carried by the ship. Objections are, in consequence, made that the navies would thereby be deprived of aircraft, which, we are told, are "indispensable" units of a fleet: or the reduction would enable so few to be carried, and under such conditions, as to be of little service.

In reply to this, two points particularly stand out. First, if all navies are equally affected, how is the security of any single nation adversely affected? Secondly, is it a fact that aircraft are "indispensable" to a navy?

It may readily be granted that it is possible that if one navy had large aircraft carriers and the other had none, some advantage would rest with the former. She would have a means of acquiring information that her enemy lacked; she would possess powers to attack an enemy in his harbours which she would not otherwise possess. She would have means of spotting for her artillery in action, and an additional flotilla for attack with bombs, torpedoes, and machine-guns. But if both Powers possess these vessels, neither is at an advantage over the other; and if neither has them, neither is at a disadvantage.

The words "indispensable" and "essential" are

used. But how can it be said that something is indispensable the need for which has never hitherto arisen? Two great wars at sea – the Russo-Japanese and the war of 1914-1918 – were fought without these “indispensable” instruments.¹ The use of the word “essential” implies that fleets cannot do that for which they are built unless both can carry to sea with them a host of aircraft.

This might be true if some new weapon had come into being to which the sole counter was aircraft. But this is not so. Great claims have certainly been made for aircraft as security against submarines. Yet there is very little doubt whatever that if the same amount of effort expended in the production and use of those numerous aircraft, which flew so many miles and destroyed so few submarines in the war,² had been put into the construction of small vessels fit for escort duty with the shipping, the trade would have been better defended.

¹ I do not forget the existence of certain aircraft carriers – the *Carmania*, the *Hermes*, the *Ark Royal*. All were comparatively small. The operations of the war were unaffected by them.

² *Average number of aircraft in use, May–November 1918:*

Aeroplanes (daily average strength)	189
Seaplanes	300
Airships	75
	<hr/> 564

Mileage flown (home waters only), 1918:

Seaplanes and aeroplanes	3,504,435
Airships	1,114,938
	<hr/> 4,619,373

Numbers of Submarines:

Sighted by aircraft	192: Attacks 130
Known sunk	4
Probably seriously damaged	6
Possibly slightly damaged	20
No reports	14
Known to have returned	120

So far as "spotting" is concerned, the possession of aircraft merely means that both antagonists can fire at longer ranges, with the probable result that neither will hit the other. Again, if one only possesses large cruisers which can use aircraft, he may have an advantage in scouting. But the proposal is not that the abolition shall be unilateral. If there were no aircraft carriers in either fleet, the two fleets would be in precisely the same relative position as those which fought at Tsushima which no one will be inclined to deny was a decisive battle.

The question, in fact, is a perfectly simple one. If the tonnage of the fighting ship, whatever her armament, is reduced to 6,000–7,000 tons, aircraft carriers can be built up to that tonnage, but no more. It is for those who take exception to this limitation to prove that the objects for which war is fought at sea cannot be attained unless both combatants have larger vessels. I am perfectly aware that a mass of special cases can be imagined in which it could be shown that a fleet would be at an advantage or a disadvantage if it possessed, or did not possess, such units; but war is not made up of special cases, and public funds are not intended to provide for every particular circumstance that may arise; nor should they be expended in fulfilment of undigested ideas of which – particularly in relation to the attack on and protection of trade – I have recently read a vast number which indicate an almost incredible lack of acquaintance with the fundamental principles of trade defence.

These great carriers are most costly vessels in

themselves. They serve no useful purpose. "The security of no nation would be adversely affected by restricting their size to that to which I have referred.

Many of us will recollect certain "curves of search" invented by an able French mathematician before the war. They used to form a part of the instruction at the War College, and were supposed to provide a certain mode of finding an enemy in an open sea. On no occasions when an enemy was being looked for in the war were these used, nor, so far as my investigation has shown, would they have proved of the smallest use if they had been. Yet to-day, flying in the face of experience, enthusiastic officers are busy devising similar "curves of search" for aircraft, which it is supposed will also prove infallible in discovering commerce raiders who are operating in regions where, for simple practical reasons, there is not the smallest possibility of their operating. Thus the technician imposes his views upon his Department, his Department adopts them, and the taxpayer is called upon to find the money on the score of what is called "expert" advice: which advice in most cases lacks the most essential quality of *expertise* — a sound strategical and practical basis. So it is with the large aircraft carrier on which so many millions have been wasted.

Let me make it clear that I am here not concerned to argue whether aircraft are better "missile-projectors" than guns. It may be that in order to ensure that an explosive missile shall strike its target it is better to carry it over that

target, and drop it upon her with the velocity given by gravity, than to expel it from some distance away at a high velocity. This is obviously a matter of opinion, and I would leave those who think either way free to act according to their opinions. Let them have their opinions and the courage of them. Precisely as I would leave it open to those who prefer an armament of, say, four 8" guns to one of nine 6" guns to furnish their vessels with the smaller number of the larger gun, so I would leave those who prefer an armament of (say) 30 bombing or other planes to either of the other armaments so to arm *his* ships: or, indeed, with any combination or permutation of guns and their calibres, speed, protection, aircraft, that his wit prefers – all within that established tonnage which I suggest as adequate to furnish the qualities necessary to enable a fighting ship to fulfil her ultimate function; and within that limiting factor of cost per ton to which I have referred elsewhere.¹

SECTION VIII: BOMBARDMENTS

A need for large battleships is invoked by some officers on the score that bombardments of land fortresses cannot be conducted by small vessels. The bombardment of dockyards or arsenals near the coast, so the arguments run, may be of great importance, and the ship of war must be able to attack these from a long range. She must possess heavy guns to do this, otherwise the enemy may defeat the attempt by mounting comparatively

¹ Cf. p. 140.

small guns. It appears in this last reason to be forgotten that any sized gun that can be mounted in a ship can also be mounted in a battery on shore: and that if any Power considers its arsenals in need of defence against sea bombardment it will install such guns as can meet those it sees its rivals mounting in their ships. The only result, in fact, of an increase in the size of the ship for this purpose is to impose upon all nations an added burden in the shape of more costly land defences, leaving the respective positions of ship and arsenal precisely as it was before that money was spent.

Apart, however, from this elementary consideration, the argument leaves out of account the fact, familiar to the seamen of the past, that the attack upon fortresses (for if the arsenal has to be destroyed the fortresses which defend it must be the first objective of the attack) never is, nor ever has been, a function of ships of the line. This doctrine is so well established as to have become proverbial. "Un canon à terre vaut un vaisseau à la mer." "Four guns are equal to a line of battleship."¹ To give ships a chance of success they must be able to bring four to five guns against one of a fort.* "Une batterie de quatre pièces de gros calibre doit avoir raison d'un vaisseau de 120 canons."² The writings of Lord Sydenham on coast defence amply demonstrated the fact many years ago, and the old seamen of this and other countries knew well that the way to take a fortress was not by bombardment, but by land action. When Sir John

¹ *Treatise on Naval Gunnery*, Captain W. Jeffery, U.S.N.

² Admiral B. J. Sullivan.

³ Vide *Mémoire de l'Artillerie Française*.

Nofris in 1741 was directed to force the passage into Ferrol he replied that it was the wrong way to go about the business. Being acquainted, as the seamen of his day were, with the experience of the past, he was able to cite actual examples from the Dutch attack on Chatham, the attack on Brest, the attack on Cadiz under Ormonde, Rooke's attack on Vigo, and de Pointis's on Cartagena. Vernon, it is true, undertook the bombardment of a fort at Cartagena, only in deference to pressure from his colleague, if not even in pique, but certainly against his own judgment. Sebastopol was attacked by the fleet in October 1854. The fleet lost 90 killed and 300 wounded, but Sebastopol was none the worse. Modern conditions have not altered the respective values of the fortress and the ship, as the Japanese experience of their bombardments of Port Arthur, the combined bombardment of Kiao-chau, and the attacks on the Dardanelles showed. Indeed, it is not too much to say that it was the deliberate rejection of past experience, the belief that changes in weapons had altered the conditions, that directly led to the tragedy of Gallipoli.

To say this is not to deny that minor or semi-obsolete fortifications, defended by inferior personnel, may not be attacked successfully in this manner. Acre, Alexandria, Sfax, and Algiers show that they may. But no one will contend that the possibility of having to deal with the modern equivalents of Moors, Arabs, or Algerines constitutes a reason for the building of great ships for this purpose. If such a situation arises as gave

rise to those bombardments, the proper instrument for the purpose is the successor of the bomb ketch in her modern form, the monitor; and she can be built, as the war showed, in an emergency, and within the tonnage I have indicated.

It is thus impossible to maintain the need for bombarding land fortresses as a reason for ships of a great size. The shore defences can, and invariably will, keep pace with those of the ships, and it would be demonstrable foolishness to attempt to out-class them. All that results from so doing is to throw upon all nations a twin burden; first, bigger ships; next, bigger guns in forts to match them. And, in the end, neither sea Power nor land Power has gained any advantage, while each is so many pounds the poorer.

SECTION IX: RUSSIA

Then there is Russia. To-day, though we hope not for ever, she stands outside agreement, and would, presumably, be free to build her "Paris Communes" and other ships, unlimited by any agreement made by the civilised Powers. While the nature of government which Russia chooses to adopt is not (notwithstanding Burke's views on the corresponding subject in 1792) any concern of the civilised Powers, her avowed external policy imposing her system upon other Powers concerns them deeply. The nations of the world, however much they may desire to disarm, have the duty of guarding themselves against what they regard as barbarism.

Whether, unaided by the skill of the Western nations, the Russia of to-day could build great ships may be doubted; but the possibility may be accepted. It is, however, one thing to build a ship and another to use her. Russia has built fleets in the past centuries, but for all that she never has been a naval nation; she never has shown any capacity whatever in using them. About 150 years ago, Admiral Sir George Collier summed up the Russian bogey at sea. Consideration of all the circumstances of the Russian naval forces brought him to "a clear and perfect conviction that with the dominions (extensive as they are) which Russia at present possesses, she never can become a great maritime Power." She had no merchant navy, therefore no seamen. When it blew, her ships could not put to sea. The officers were ignorant, and were no seamen. The administration was bad; supplies could only be procured slowly and with difficulty; and their seaports were locked by ice for seven months. She had few shipbuilders, and they built badly.¹

Lord Salisbury, a hundred years later (1877), came to very much the same conclusion. "Their naval history does not exist. Their finances, never good, are now desperate: their social condition is a prolonged crisis, threatening, at any moment of weakness, socialist revolution. Their people are unwarlike, their officials corrupt, their rulers competent only when borrowed from Germany. Maritime population they have practically none. . . . To make a maritime Power something more is

¹ Fortesque, *Correspondence of King George III*, vol. iii., p. 345.

wanted than a good port – men and money are required: and Russia has neither.”¹

Things have changed but little since the days of Sir George Collier or of Lord Salisbury. Steam has taken the place of sail, but ships can still only be handled by seamen. The administration of Russia to-day is no less inefficient or corrupt than it was in the times of the Czars. Little maritime population as she had then, she has less now. Finland, one of the sources of her few good seamen, is an independent country; the Baltic provinces are no longer parts of Russia. The greater part of her efficient Flag officers have been of foreign extraction, and these she does not now possess. Moreover, if there be one element in a sea-officer’s character of outstanding importance, it is individuality. The officer who is a mere automaton is useless. The great sea-officers are those who are prepared to accept responsibility, to take action as they think proper, to make free interpretations of their instructions – witness Hood, Suffren, Nelson. Such officers could not come to the front, or, if they should succeed in so doing, could not long survive under a system of delation and suppression of individual thought and action.

Though, therefore, Russia might be able to build efficient great ships – itself, as I have suggested, a highly improbable event – the nations of the civilised world need be under no apprehension whatever that they could use them. Efficient commanders like Makaroff or the brave and

¹ Lady Gwendolen Cecil, *Life of Lord Salisbury*, vol. ii., p. 141. The reference to the “good port” applies to Constantinople, then threatened with Russian annexation.

brilliant Von Essen may again arise in a newer Russia; but they will not arise under the present régime; and if and when a change in régime should take place, we may confidently anticipate that it would be accompanied by an acceptance of any limitations of size to which the other nations shall have agreed.

From whatever light, in fact, we regard the Russian factor in the naval problem, the fact that Russia to-day is an outcast, free and unrestrained to build what she chooses, constitutes no reason in the world why the other nations should between them spend a total sum in the near neighbourhood of £400 millions sterling¹ to guard themselves against a Russian "danger." When such views as those of Admiral Collier and Lord Salisbury were expressed, Russia was, in appearance, a strong naval nation; she had a fleet of "capital" ships. To-day she is nothing of the sort. It would argue some timidity on the part of the civilised Powers to allow themselves to be influenced by such a turnip-top spectre, the more especially as they have the power to combine against her if she should endeavour to enforce her social principles upon any of the civilised nations.

¹ Approximately the total difference between the cost of the battle-ship fleets if composed of 35,000 or 6,500 ton ships. To this is to be added the saving in the cost of cruisers owing to a reduction from 10,000 to 6,500 tons, and of aircraft carriers from 27,000 tons to the 6,500: and also of their upkeep.

SECTION X: FETTERING SCIENCE

We next are told that to place a limitation on the growth of an instrument would be wrong, as it is contrary to all sense to fetter science. "Science" has enabled man to build great ships. Obviously, therefore, man should make use of the powers which science has conferred upon him.

This argument appears to me to be the very negation both of common sense and of the practice of every other profession in the world. A ship is built to perform a certain service; and precisely as every other instrument employed by man is designed to be of the smallest—the most economical—size which will enable it to perform some service, so should a fighting ship be designed. That which science has enabled man continuously to do is to obtain greater power out of a given quantity of raw material. A ton of coal drives a ship farther than it did a hundred years ago: it is a commonplace that in the early days of steamships it was said that no steamer could cross the Atlantic, as none could be built to carry the necessary coal that she would have to consume. Science has taught us how to utilise coal so that the raw material does more work. So a steel bridge of lesser weight than one of iron will carry the same load; an "automatic" of a few ounces weight will do its business more effectively than an arquebus weighing several pounds.

The true exploitation of science is surely not to make things larger because they *can* be made larger, but to achieve the object for which they

are built with a lesser expenditure of material, money, or men. That is its true application in relation to the material of war, precisely as it is in relation to the operations of war. The skilful – that is, scientific – commander is he who gains his ends by the most efficient use of his material; that is, by a wise “economy” or “management” of his fighting men. If the object of navies be, as I have supposed it to be, security: and if the object of operations by which security is reached can be attained by vessels of, say, 1,000 tons, there is no more sense in fixing the size of fighting ships at 2,000, 20,000, or 30,000 tons than there would be in “eating dinners with knives bigger than broadswords” or the other analogies from pantomime used by the correspondent of 1855 already referred to.¹

Instead of taking advantage of the power which science has placed at the disposal of man, we are – all of us – driven by competition – a competition for which this country is mainly though not wholly responsible² – to build great ships. The vessels which composed the Mediterranean Fleet fifty years ago were capable in their day of doing that which ships were required to do. They were

¹ See p. 96n.

² “The work carried out during the war represented the culmination of half a century’s efforts in developing naval design, and showed that throughout this period Great Britain had led the way” (the Vice President of the Institution of Naval Architects, March 16, 1921). This half-century’s “leading the way” included increasing the size of the fighting ship from the *Monarch* (1869), of 7,840 tons, to the *Hood* (1918), of 42,000 – and the cost. “In increase in dimensions England has led the way. . . . Increase in dimensions has been reluctantly accepted in the French Navy” (Lord Brassey, *Observations on Naval Expenditure*, 1903). Finally, the Dreadnought policy.

(1880), with only one exception,¹ of under 9,000 tons.

Since 1880, science has given us improved instruments, and there is not a shadow of doubt that a flotilla of destroyers of to-day, of individually one-tenth of the size of the battleships—"ironclads"—of 1880, manned by 100 men in place of the 500 to 600 of the ships of that fleet, could demolish it in half an hour, and could control the movements of shipping in the Mediterranean to-day as those could in their day.

To the cry, therefore, that science is being fettered, and not allowed to function, the reply is plain. The term "science" implies the use of scientific method. Scientific method starts with an examination of the beginnings of things. It concerns itself, first and foremost, with the object; it ensures that the investigator establishes clearly in his own mind the purpose in view; and it then relates the instrument to that purpose. Aware of the fact that "science" is not confined to material, it recognises the existence of a science of war. Nor (since scientific method takes count of all factors that affect the issue) does it blind its eye to the existence also of an art of war, which, in the end, is the determining issue. "There are artisans enough in any army; what are wanted are artists."² The existence of the artist has been forgotten, and those works of art, wars, campaigns, and ships, have been confided to the heavy hand of the mere artisan.

¹ The *Inflexible*, a monstrosity of 11,880 tons. Among them were the *Invincible*, of 6,010, and the *Penelope*, of 4,470—all "battleships."

² Turpin de Crissé, *Commentaires sur Eneas*, book ii., chapter ii.

So far, therefore, from this proposal fettering science, it permits science to give us the advantages in economy that she is capable of giving. It prevents that most unscientific of all processes — waste.

CHAPTER V

PEACE ESTABLISHMENTS

THUS far I have referred to two elements in the problem of reduction of naval armaments – quantity and type. If one object of reduction of armaments be “economy,” as I suppose it to be (whether our conception of economy be the best way of spending money or the best way of saving it), there is a further element deserving consideration – readiness.

Readiness is a factor in expenditure. It is probably no less a factor affecting whether war breaks out or peace is preserved. The influence of delay, the results of a period of “cooling-off,” might almost be said to form the foundation of those arrangements made in Articles XVI. and XII. of the Covenant of the League. The question which I suggest for consideration is whether this does not open up another source for economy.

When war, whether private or tribal, was the normal condition of life of man, man had perforce to keep himself in a constant state of readiness. Not only did he furnish himself with weapons, but he kept them ready for use at all times. He carried his weapons when he tended his flocks, or cultivated his land; they hung on the wall, and were close to his hand at home, ready for use at a moment's notice. Those who were in Crete in the troubled times of 1898 will recollect the constant state of alertness in the hill-villages, whose men,

women, and even small boys, armed and ready to fight, would stream out at a moment's notice to defend themselves on the alarm of an attack by the "Turks."

Europe, before the late war, was in a like condition. The policy of the statesmen had produced a condition of extreme international strain and instability. The smallest disturbance threatened to produce a universal upheaval. Armaments were the expression of this policy; and the combination of policy with armaments begetting fear, fear begat more armaments. Organisation accompanied the increase. Large forces must be kept in constant readiness, and a more rapid mobilisation of the reserves was an essential factor in national strength.

It appears to me that this degree of readiness, so essential as policy had rendered it before 1914, does not exist to-day; or, to put it more cautiously, exists in a very modified form: and that the true lesson of the Covenant and Pact is not that we dispense – as yet – with the instruments considered necessary for security, but that we are not under the obligation to maintain the same state of readiness. Even those who are not prepared to place their whole reliance upon the "renunciation of war" may be prepared to agree that there is not the same risk of its outbreak within a few hours as there was then. The British Admiralty, it will be recollected, noted as one of the disturbing elements in the projected German Supplementary Law of 1912 that it meant that four-fifths of the German navy would be kept in permanent

commission¹: an increase over the 1900 law which was bound to react upon the condition of preparedness of the British navy; that is, its proportion and number of ships in permanent commission.

I have argued earlier that so long as the possibility of war remains with us, and the life of a nation may still therefore have to depend upon the *ultima ratio* of force, it is highly illogical to reduce the quantity of that force below the strength considered necessary for security. The villager of the troubled times did not throw away his weapons when a truce was declared; but he did not need to carry them on his back at the plough tail and place that handicap upon his productive energy. Force, in its form of weapons, and in particular in that of those large weapons used at sea – ships – cannot be conjured into existence in an emergency. A navy cannot spring Minerva-like from the Homburg hat of a Prime Minister when a crisis arises. A ship of war, as I have said earlier, takes some two years to build. Precisely as the Cretan peasant could not wait to buy his rifle until the Bashi-Basouk threatened him, but must possess, at that moment, the rifle and its ammunition with which to defend himself and his family, so a nation cannot defer the provision of ships, for the want of which the life of the nation would be killed, until the danger threatens. In blindly reducing armaments below what is needed for security – for no officer acquainted with the problem of imperial defence imagines that the London Treaty has left the Empire in a condition to defend itself – we are, I

¹ German Diplomatic Documents (English translation), vol. iv., p. 76.

suggest, misapplying the benefits which the Covenant of the League holds out. That benefit, as I have indicated, appears to me to lie in a greater relaxation of the condition of readiness; or, in other words, in a lower standard of Peace Establishment.

I can well suppose that this suggestion will be roundly condemned by many who remember the conditions of 1854. I am no less aware that large administrative – and even social – problems are also involved, than I am that no single nation can afford, in the present state of the world, to fall below the standard of readiness of others. Any relaxation in readiness, in reduction of Peace Establishments – numbers of ships in commission – must be general.

Without attempting to assert that what was done in the times when the material was simple – or comparatively simple – in character, can be done to-day with the complex material of a modern man-of-war, I think the practice of our predecessors in this respect is not unworthy of consideration.¹ To them – in 1749, in 1763, or in 1783 – economy was as absolutely necessary as it is to us to-day. A war over, a Treaty of Peace was signed, in which declarations of friendship as perpetual, enduring, and secure as that promised by these our later Treaties were occasionally made. That done, the nation laid aside its ships in their

¹ Though I allow myself to use the word "simple" for the material, I do not forget that its use required extreme skill. The seaman in the sailing ship was even more skilled a man than the electrician or stoker of to-day. When ships had to be manned, the skilled seamen of the country manned the fighting fleet.

dockyards and reverted to a Peace Establishment of ships in commission, reduced to the smallest forces with which the interests of the nation could be secured in peace. What were these Peace Establishments?

In England, from the days of Queen Anne until the year 1793, the Peace Establishment of the navy was fixed at 16,000 men, in comparison with the 85,000 to 90,000 or more needed to man the fleet in war. The squadrons abroad, which in war had been composed of the lesser ships of the line, the larger and the smaller frigates, were reduced to frigate forces only. The 20 or more "battleships" which had formed the Mediterranean Fleet in 1744-1748 were reduced to a frigate squadron of a few ships; the Western squadron – our "Channel squadron" of a few years ago or our "Atlantic squadron" of to-day – was reduced to 20 guard ships with reduced crews, a few frigates, and some cutters.¹ In brief, Parliament voted 16,000 men for the navy, and the Admiralty distributed them in ships as was considered most expedient for the services of peace, in the political conditions in which the world found itself. But ships were still available to be manned if the occasion should arise; and an organisation – a bad one, because of the unfeeling attitude of Parliament to the men who served the country at sea – existed for the provision of men. This organisation, which had worked effectively, if clumsily, throughout the great wars of the eighteenth century, before Sir James

¹ Cf. *The Navy in the War of 1739-48*, p. 5, and *The Navy in India, 1763-1783*, p. 34.

Graham's reforms, broke down hopelessly, owing to bad administration,¹ in the Crimean War, and led to the establishment of a larger permanent personnel.

It is possible that Peace Establishments to-day are as low as, with safety and with proper regard to administrative and social factors, they can be. It may be that the complexity of the modern ship renders impossible any modern adaptation of the system used by our predecessors. On neither of those points do I desire to dogmatise. I confine myself to the suggestion that, as it is our duty to examine all possible courses of action, even those from which we instinctively shrink, we are not entitled to omit this one from our consideration. Incidentally, it may be remarked, the adoption of smaller vessels mitigates some of the difficulties attached to complexity. A sloop, for example, could be manned by men who had received less special training than a *Rodney*. A lesson of the war may also be borne in mind in this respect – the adaptability of men. Many trades, supposed to be mysteries, were mastered quickly in 1914–1918 by men – and women – who had never touched or even heard of them before.

Is, then, the Bismarckian motto, "*Toujours en vedette*," applicable to-day? Have the Pacts and Treaties in no way affected the situation? If they have, is not this an element in the problem which we require to take into consideration as one of the means of obtaining economy consistently with security?

¹ The Graham reforms, which destroyed the Admiralty organisation and confused the executive and administrative functions, had much to do with this breakdown. Cf. *National Policy and Naval Strength*.

CHAPTER VI

THE INQUISITION

I HOPE that I have shown that there is at least reason for an inquisition, on the part of all the nations concerned, to be seriously and scientifically conducted by each, before they meet again. It may seem bold for an officer to suggest the lines upon which such an inquisition should be conducted, but from what I have seen of the methods, and want of method, of those enquiries conducted hitherto, I feel justified in giving expression to my views.

In the first place, I think it should be clear that this matter is not merely technical, nor is it, even in its major technical aspects, one which any man whose training has fitted him to understand and weigh evidence is incapable of investigating. It is, for instance, in no sense whatever so profound or specialised a problem as many of those which are constantly dealt with by the trained minds in the Courts of Law. Those – and there are such – who pretend that the question can only be examined and pronounced upon by sea-officers deceive both themselves and the public; and when, as not infrequently happens, there is a difference of opinion between sea-officers themselves, as there is and long has been in one important element of this problem – the size of the fighting ship – it appears clear that a correct decision can only be made by a

man or men holding no preconceived views in favour of either opinion.¹

An Admiralty Board in this country is usually, or of late years has been, composed of officers of the school of thought which has led to promotion in their day. Those officers who hold different views as to naval policy are rigidly excluded. This is not an unnatural feature of administration; but, while it makes for easy working within the Admiralty building, in disposing of questions with a minimum of opposition from within, it suffers the disadvantage that "the other side of the case" never receives a hearing. The lower members of the hierarchy tend to be disinclined to express views contrary to those of the reigning dynasty, even if they should hold them, for the very good reason that if they should do so they would soon cease to hold their offices, and would – or fear they would – suffer in their prospects. There can only be one result of this. Every argument that can support the "official" view receives full opportunity of being expressed: those which differ, if they are heard at all, are replied to by the official advocates. And – as I personally have seen it – these advocates are sometimes so anxious to confute the opposing opinions that they have not the time even to make themselves acquainted with them.² Enquiry

¹ I have a vivid recollection of a conversation with Lord Goschen on this subject, when he was First Lord. He told me how often in his experience he had to try to, and been able to, conciliate opposing thoughts at the Admiralty Board.

² I may be excused if I support this strong expression of opinion with evidence. I was myself told that one matter – out of several – in which my opinions were dissented from was my advocacy of the adoption of the "global" system of tonnage. Not only had I never held this view,

conducted in such a manner would not be tolerated in any other walk of life.

The kind of committee which in my opinion would be properly constituted to examine this problem – and let it be remembered that this is a problem in which many millions of money on the part of all nations, as well as their national security, are involved – should be one composed of, at the outside, three men who are not holding office at the time. What type of man is needed? Without attempting to make a definition, I would say that (avoiding the use of living personalities) a committee composed of the late Lords Balfour, Haldane, and Moulton, when in the height of their powers, would be admirably suited to such a purpose. Statesmanship, the power of weighing evidence and of finding out the reason why opinions are held, would be fully represented in such a body. It should be impossible to fob off a committee of such men with officially invented definitions, catchwords parading as unimpeachable truths, or the repetition of other men's opinions. The principal questions to which they should, in my opinion, address themselves are, "What dictates the size of a navy?" and "What dictates the size of a ship?" with a corollary to the second, "How small can a fighting ship be?"

If other nations should similarly make a scientific enquiry, we should, before our next general Conference, have had time to compare these views and to begin the Conference not only with a knowledge

but I had clearly and unequivocally said that I disagreed with *in toto*. No less pronounced cases of misrepresentation of opinions concerning command and training have occurred within my recollection.

of each other's views on these fundamental questions, but with minds instructed in the problem which was before them for solution. The former of these conditions certainly did not exist at the last Conference; the second would certainly not describe the condition of mind of the British delegation.

CHAPTER VII

SUMMARY

THE broad conclusions to which I arrive are as follows:

(1) It is an essential preliminary to reduction of armaments that statesmen shall agree among themselves as to the object they have in view (p. 10). This they have not yet done, and until they do so they are beating the air.

(2) Until international views as to the relation of armaments to war shall have developed, the present object is security combined with economy.

(3) No other purpose than that of national defence should affect the determination of size of the national naval armament.

(4) That the quantitative element in the strength of navies is a twofold question.

(a) The numbers required in the main concentrations are relative. The criterion for these is the strength of the weakest naval power.

(b) The numbers required on lines of communication are absolute. The criterion for this is, in the case of each nation, the nature and extent of its own external communications.

(5) That the relative strength in main concentrations is susceptible to solution by common agreement, but the "cruiser"¹ strength is a matter

¹ Which means all vessels, of whatever size, below "the line."

which can only be determined by each nation for itself according to its needs.

(6) That a fighting ship of about 6,500 tons is sufficiently large to fulfil all the requirements so far as tactics and strategy are concerned.

(7) That the simplest, most logical, and – in a strategical and tactical sense – soundest formula for agreement is the limitation of the fighting ship to this size, nations being free to embody whatever characteristics they desire to meet their needs; and that nations should make a statement of their intended policy (e.g. “Two Power Standard” or other ratio as regards other Powers).

(8) That a limitation of cost per ton in ship-building is desirable, practicable, and fair.

(9) If it be – politically – impracticable to amend the naval clauses of the Treaty of Versailles, a reduction to the above figures cannot be made. In that case, the size of the largest ship should be 10,000 tons, and of the cruiser (about) 6,500 tons (p. 134).

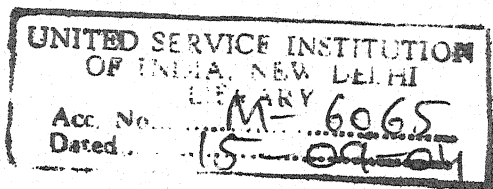
(10) That within the assigned limits of size, and cost per ton, there should be complete freedom of design.

(11) That in this case (par. 10) the Treaty of Versailles affords a fixed criterion from which to proceed in calculating the number of “capital” or 10,000-ton ships of each nation (pp. 136–9).

(12) That cruisers of 6,500 tons are sufficiently large to fulfil strategical and tactical needs of all nations without exception (p. 121).

(13) That the question of whether the Pacts render it possible to make common reductions in Peace Establishment should be examined.

(14) That each nation should conduct an examination of the problem independently, and, having reached conclusions, exchange opinions and endeavour to arrive at a common agreement before the next Conference meets.





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